

OMAHA, NE, DISTRICT

This district comprises portions of Montana, Wyoming, North Dakota, South Dakota, Minnesota, Colorado, Nebraska, Iowa, and Missouri, all embraced in the drainage basin of the Missouri River along the mainstem and tributaries to Rulo, NE.

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Navigation

1. MISSOURI RIVER, SIOUX CITY, IA TO MOUTH (SIOUX CITY, IA

TO RULO, NE)

Location. Channel of the Missouri River extending from Sioux City, IA to Rulo, NE.

Previous Projects. For details see page 1893, Annual Report for 1915, and page 1175, Annual Report for 1938.

Existing Project. A navigation channel of 9-foot depth and width not less than 300 feet, obtained by revetment of banks, rock dikes to contract and stabilize waterway, cutoffs to eliminate long bends, closing minor channels, and removal of snags and dredging as required. Construction was initiated on this section of the project (Sioux City to Rulo) in FY 1928, the bank stabilization work was completed in April 1979, and the navigation feature was completed in September 1980. A reliable channel suitable for navigation is available through this section. Controlling depth at ordinary stages of the river is 9 feet, with additional depths available during high stages. Commercial navigation was inaugurated on this section in May 1939, and common carrier transportation service was inaugurated in October 1946. Seven riverside recreation sites are complete and in operation. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-2 of FY 1988 Annual Report.

Terminal Facilities. Terminal facilities for loading and unloading grain, liquids and dry bulk products are maintained by private interests at various locations on this section of the river. A complete list of terminal facilities is included in the Missouri River navigation maps and can be obtained from the Omaha District for a small fee.

Operations During FY. District personnel accomplished channel reconnaissance, surveys and mapping, engineering and design, surveys and layouts of construction, and supervision and administration. Local interests operate and maintain the recreation sites. Government Hired Labor Forces completed maintenance, which consisted of placing stone on damaged structures and placing structure markers to aid navigation.

2. NAVIGATION WORK UNDER SPECIAL AUTHORIZATION

Small Navigation Projects Not Specifically Authorized by Congress (Sec. 107 of the River and

Harbor Act of 1960, as amended, Public Law 645, 86th Congress).

No work during the period.

Flood Control

3. ABERDEEN, SD

Location. This project is in the Moccasin Creek subbasin in the city of Aberdeen, Brown County, South Dakota. Aberdeen is located in the James River Valley in the northeast quarter of South Dakota.

Existing Project. The selected alternative is a 100-year event levee 2.9 miles long on the northeast side of Aberdeen that will prevent 49 percent of the average annual flood damages to structures and contents in that area. The proposed levee will essentially block existing drainage to Moccasin Creek, and a combination of culverts with gates and detention ponds were incorporated into the design to mitigate this interior drainage problem. A two-foot road raise at Fairgrounds Road is also included.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended applies. The city of Aberdeen and Brown County is paying the local share of the project.

Operations During FY. Plans and specifications were completed for Phase II construction. Advertisement and award of Phase II will occur once necessary Real Estate interests have been obtained.

4. BEAR CREEK LAKE, CO

Location. The dam site is on Bear Creek in Jefferson County, CO, about 8 miles above the confluence of Bear Creek with the South Platte River at Denver.

Existing Project. Earthfill dam 180 feet high, with a crest length of about 5,300 feet; and a supplementary earthfill dike with a height of 65 feet and a crest length of 2,100 feet, to the south of the main dam, and an uncontrolled earth and rock-cut emergency spillway. The lake provides storage capacity of 28,831 acre-feet for flood control and 1,979 acre-feet for sediment and recreation. Construction of the project was initiated in October 1973 and was completed in September 1982, exclusive of recreation facilities. (See Table 26-A for total

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cost of construction.)

Local Cooperation. Requirements are described in full on page 21-3 of FY 1981 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

5. BIG SIOUX RIVER AND SKUNK CREEK, SIOUX FALLS, SOUTH DAKOTA

Location. Sioux Falls is located on a large bend of the Big Sioux River and at the confluence with Skunk Creek in the south half of Minnehaha County in southeastern South Dakota.

Existing Project. The project builds upon an existing project. It consists of raising an existing levee from the diversion dam to the upstream tie-off, raising the diversion channel levee, modifying the chute and stilling basin, raising the diversion dam, raising the levees on Skunk Creek, raising big Sioux levees downstream of Skunk Creek, and providing for bridge improvements.

Local Cooperation. This project is authorized under Section 101 of the Water Resources Development Act of 1996. The Project Cooperation Agreement (PCA) with the city of Sioux Falls to sponsor the Big Sioux River project was executed on 14 August 2000. The current non-Federal cost estimate is \$10,402,000. The current Federal cost estimate is \$31,206,000, for a total project cost of \$41,608,000.

Operations During FY. Construction of Phase IA for the first portion of the modifications to the existing reinforced concrete chute and stilling basin structures and associated sub-drain system was completed. The construction contract for Phase IB is scheduled for award in October 2001.

6. BOWMAN-HALEY LAKE, ND

Location. The dam site is on North Fork of Grand River in southwestern North Dakota, about 6 miles above Haley, ND.

Existing Project. An earth-fill dam 79 feet high, with a crest length of 5,730 feet, and a reservoir with a flood storage capacity of about 72,700 acre-feet, plus 19,780 acre-feet for sediment storage, fish and wildlife

conservation, recreation, and future water supply for communities of Bowman, Reeder, Scranton, and Gascoyne, ND. Construction was initiated in July 1964, and the project was completed in 1970. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-2 of FY 1988 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

7. BUFORD TRENTON IRRIGATION DISTRICT, ND (LAND ACQUISITION)

Location. The Buford Trenton Irrigation District (BTID) is located in the flood plain along the left (north) bank of the Missouri River near its confluence with the Yellowstone River, in Williams County near Williston, ND.

Existing Project. The project consists of the acquisition of permanent flowage and saturation easements within and surrounding the BTID for land that has been affected by rising ground water and the risk of surface flooding. There are approximately 70 affected landowners and 90 tracts. Approximately 10,000 acres are irrigable and 1,750 non-irrigable. Acquisition of easements and relocation assistance under P. L. 91-646 began in FY 1998. The total cost of the project is capped at \$34,000,000 by authorizing legislation.

Location Cooperation. The project is authorized under Section 336(a) of the Water Resources Development Act of 1996, P. L. 104-303. Local cooperation is not applicable.

Operations During FY. This FY, thirty-nine easements were purchased totaling \$6,609,325 with associated costs. Appraisal of existing tracts will continue into FY 2002 along with the purchase of additional easements.

8. CHATFIELD LAKE, CO

Location. A dam site on the South Platte River, just below the mouth of Plum Creek, about eight miles upstream from Denver, CO.

Existing Project. Consists of rolled earth-fill dam with a maximum height of 148 feet and a crest length of

12,500 feet; a reservoir with flood control capacity of 204,737 acre-feet and sediment capacity of 26,692 acre-feet, which will be used for recreation; and an enlarged channel from the dam downstream to Denver to accommodate reservoir flood releases. The Corps participated with local interests in acquisition of lands and development of recreation facilities immediately downstream of the Chatfield Dam in lieu of a portion of the channel improvement. Construction of the project was initiated in August 1967 and was physically completed in 1992. (See Table 26-A for total cost of construction.)

Local Cooperation. Requirements are described in full on page 26-3 of FY 1993 Annual Report.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

9. CHERRY CREEK LAKE, CO

Location. A dam site on Cherry Creek in Arapahoe County, CO, approximately 6 miles southeast of Denver, CO, just outside of city limits. Cherry Creek joins South Platte River within city limits of Denver,

Existing Project. A rolled earth-fill dam with maximum height of 141 feet above streambed and a crest length of 14,300 feet. Project includes a reinforced concrete outlet works and an uncontrolled side channel spillway canal discharging into adjacent Toll Gate Creek. Cherry Creek project provides reservoir storage capacity of 93,920 acre-feet below spillway canal invert and, in addition, a surcharge storage of 134,470 acre-feet. Plan of operation in ultimate development for multiple-purpose uses includes 13,960 acre-feet for sediment storage and 79,960 acre-feet for conservation purposes. Construction began in FY 1946 and was completed in June 1961, exclusive of recreation facilities. (See Table 26-A for total cost of construction.)

Local Cooperation. None required except for recreation cost sharing.

Operations During FY. Maintenance: Continued routine operation and maintenance activities.

10. FALL RIVER BASIN, SD

Location. In Custer and Fall River Counties, in and

near the town of Hot Springs, SD. Hot Springs unit is in the town of Hot Springs, immediately south of the junction of Cold Brook and Hot Brook which combine to form the Fall River. Cold Brook Lake unit is approximately 1.25 miles north of the town of Hot Springs on Cold Brook, and Cottonwood Springs Lake unit is approximately 4.5 miles west of the town of Hot Springs on Cottonwood Springs Creek, one-half mile upstream from its confluence with Hot Brook.

Existing Project. The general plan of improvement provides flood protection for Hot Springs, SD. The Hot Springs channel improvement unit consisted of widening, deepening and straightening 6,000 feet of channel of Fall River. The Cold Brook Lake unit, an earth-fill dam with appurtenant structures, controls an area of 70.5 square miles. The Cottonwood Springs Lake unit consists of an earth-fill dam with appurtenant structures and controls an area of 26 square miles. Construction of Hot Springs unit was completed during FY 1951. Construction of Cold Brook unit dam and appurtenances was completed in FY 1953 with the exception of a road and parking area, which were completed in FY 1955. Construction of the Cottonwood Springs Dam was completed in FY 1970, with the exception of the recreation facilities, which were completed in FY 1972. (See Table 26-A for total cost of construction.)

Local Cooperation. Local cooperation requirements have been fully complied with.

Operations During FY. Maintenance: Routine operation and maintenance activities were continued on the Cottonwood Springs and Cold Brook Dams and structures.

11. LOGAN CREEK, PENDER, NE

Location. This project is located in northeastern NE, approximately 75 miles north-northwest of Omaha, NE. Pender is located along the right bank of Logan Creek, about midpoint in the Logan Creek basin.

Existing Project. The selected plan is a combination levee and floodwall with a detention storage feature. It provides flood protection from Logan Creek as well as incidental benefit from Stage Creek flooding to the Village's residential and industrial area as well as its central business district. The levee extends approximately 15,000 feet in length along the north, east, and south edge

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of the community, averaging 10 feet in height.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The Village of Pender is paying the local share of the project.

Operations During FY. Construction and final inspection were completed in 2001. O&M Manuals, Real Estate Certification and project closeout are projected for completion lay in FY 2001 or early FY 2002.

12. MILK RIVER, MALTA, MT

Location. This project is located in Phillips County in North Central MT. The city of Malta is located approximately 170 miles northeast of Great Falls, MT.

Existing Project. The selected plan is a levee/flood-wall constructed along the right bank of the Milk River to provide protection for the area immediately upstream from the Burlington Northern Santa Fe Railroad (BNSF) bridge. The project consists of an earthen levee that is 1,800 ft in length, combined with a floodwall that extends 1,040 ft. The height of the levee ranges from 4 to 10 ft above natural ground along its entire length. The levee/floodwall requires a tie-off with the existing BNSF grade on the downstream end.

Local Cooperation. Section 205 of the Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The city of Malta participated in the project's cost sharing requirements utilizing a \$176,500 grant from the State of MT combined with real estate interests of approximately \$282,000.

Operations During FY. Construction phase is complete with remaining requirements directed toward project management, coordination with local sponsors and project closeout.

13. MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD

Location. On the Missouri River between Gavins Point Dam and Ponca State Park, NE. This includes Cedar and Dixon Counties in Nebraska, and Yankton, Clay, and Union Counties in South Dakota.

Existing Project. The designation as a National Recreational River will preserve outstanding and important scenic values and will provide additional opportunities for river access and recreation use. The project provides erosion control, consisting of bank stabilization and river management techniques designed to preserve the existing environment, and at the same time preserves high bank flood plain lands. Estimated total cost of construction is \$24,626,000 of which \$21,000,000 is the Federal cost of construction and \$3,626,000 is the non-Federal contributed funds.

Local Cooperation. All recreational construction on this project will be done in accordance with the cost-sharing and financing concepts reflected in the Water Resources Development Act of 1986. A cost-sharing contract with the state of South Dakota for the Myron Grove access site was signed on June 24, 1986; and the Yankton-Riverside Park Section 215 Agreement was signed on April 24, 1989. Construction was completed in June 1987 and June 1991, respectively. A Section 215 agreement was signed on May 30, 2001 with the Nebraska Game and Parks Commission for construction of the Ponca Resource and Education Center.

Operations During FY. Design of the Ponca Resource and Education Center was completed. The contract for construction of the Ponca Resource and Education Center was awarded late in FY 2001 with a scheduled completion date of early FY 2003.

14. MISSOURI RIVER, KENSLERS BEND, NE, TO SIOUX CITY, IA

Location. Project is along Missouri River between Ponca Bend, NE, and combination bridge at Sioux City, IA.

Existing Project. Construction of dikes, revetments and channel improvement along Missouri River from Miners Bend and vicinity, SD and NE, to Sioux City, IA. Project was started in June 1946 and completed in June 1961. (See Table 26-A for total costs.)

Operations During FY. Routine operation and maintenance activities continued.

15. NISHNABOTNA RIVER, HAMBURG, IA

Location. This project, the Nishnabotna River and

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Main Ditch 6 at Hamburg, IA is located in Fremont County, 40 miles south-southeast of Omaha, NE.

Existing Project. The selected plan determined in the feasibility phase, is the construction of a levee approximately 8,300 ft in length along the left bank of Main Ditch No. 6. A range of economically feasible plans were identified from which the city of Hamburg selected and is supported by the Corps. A levee will be constructed along Main Ditch 6 with a levee top, referenced as the 911.0 m.s.l. plan having an accedence equivalent to a 300-year event and a 46 percent reliability passing 500-year event. Selection of a levee height was constrained by the elevation of the Burlington Northern Santa Fe (BNSF) Railroad mainline tracks. The BNSF has raised its mainline track approximately 1.5 ft to accommodate the new levee.

Local Cooperation. Section 205 of the Flood Control Act of 1948, as amended; Flood Damage Reduction applies. The city of Hamburg is participating in the project's cost-sharing requirements utilizing a Community Development Block Grant to help fund real estate interests of approximately \$130,500 and cash contributions of \$226,800.

Operations During FY. Operations & Maintenance Manuals were prepared in FY2001. Remaining requirements are directed toward project management coordination with local sponsors and project closeout.

16. PAPILLION CREEK AND TRIBUTARIES LAKES, NE

Location. The Papillion Creek basin is located in Washington, Douglas, and Sarpy Counties, NE. Big Papillion Creek rises west of Blair and flows southeasterly through metropolitan Omaha. It is joined by the Little Papillion Creek just above Offutt AFB, forming Papillion Creek. The combined creeks flow along the side of Offutt AFB to its confluence with the Missouri River.

Existing Project. The project consists of a series of four dams and reservoirs, channel improvements, an effluent storage facility, and a flood warning system on tributaries of Papillion Creek. Construction was initiated in FY 1972. Completed projects include Standing Bear Lake, Glenn Cunningham Lake, and Wehrspann Lake. Estimated total costs for the project is \$68,659,000 consisting of \$64,334,000 in Federal funds (\$1,367,000 to

be reimbursed by the non-Federal sponsor) and \$2,958,000 non-Federal other costs and cash contributions.

Local Cooperation. Requirements are described in full on page 21-6 of FY 1981 Annual Report.

Operations During FY. O&M manuals are being finalized. Remaining requirements are directed toward project management coordination with local sponsors and project closeout.

17. PEBBLE CREEK, SCRIBNER, NE

Location. Scribner, NE, is located in Dodge County about 47 miles northwest of Omaha. Pebble Creek is a right-bank tributary to the Elkhorn River.

Existing Project. The project includes a 3.6 mile-long levee along the Elkhorn River with a maximum height of 5 ft (a modification to the original Pebble Creek project), one closure structure at U.S. HWY 275 at the northern edge of Scribner, and several ramps over the two levees. An automated flood warning system was installed that will allow adequate time to operate the closure structure. Both levees are completed which essentially is one ring levee that provides protection for the entire city of Scribner.

Local Cooperation. The city of Scribner strongly supported the entire Pebble Creek levee project, including the Elkhorn River levee and its modification. The City obtained cost-sharing assistance from the Nebraska Natural Resources Commission and the Lower Elkhorn Natural Resources District. The total cost of the project was \$3,232,000. The non-Federal portion of this totaled was \$807,000 which includes \$363,000 for lands, easements, and rights-of-way.

Operations During FY. Final audit and project closeout occurred in FY 2001.

18. PERRY CREEK, IA

Location. The Perry Creek basin is located in Woodbury and Plymouth Counties in northwestern Iowa. The downstream five miles of the basin lie within the corporate limits of Sioux City, IA, and drain the central portion of the city.

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Existing Project. The project consists of 14,800 linear feet of grass and rock lined channel, 1,500 linear feet of new conduit, modification of 710 linear feet of existing conduit, and a concrete stilling basin, to provide capacity for the 100-year event. Also included are 4.25 miles of hiking/biking trail and a basin-wide flood warning system. Estimated project cost is \$71,900,000, of which \$46,735,000 is Federal cost and \$25,165,000 is non-Federal cost.

Local Cooperation. The project is authorized under the 1986 Water Resources Development Act. The city of Sioux City, IA, is the local sponsor.

Operations During FY Construction for Phases II and III were completed and turned over to the sponsor. Design efforts for Phase IV construction were initiated in FY2001.

19. PICK-SLOAN MISSOURI BASIN PROGRAM (OMAHA DISTRICT)

Location. Flood control improvements in this project are along the Missouri River and several of its principal tributaries and in states comprising the Missouri River Basin.

Existing Project. A general comprehensive plan for flood control and other purposes in the Missouri River Basin provides for levees along Missouri River between Sioux City, IA, and mouth and reservoirs on the Missouri River main stem and tributaries. See individual reports and Table 26-I for projects in the Omaha District included in the program.

20. PIPESTEM LAKE, ND

Location. On Pipestem Creek in Stutsman County, ND, three miles upstream from where Pipestem Creek joins the James River at Jamestown, ND.

Existing Project. The project consists of a rolled earthfill dam approximately 108 feet high with a crest length of 4,000 feet and outlet works of a gated reinforced concrete conduit. The reservoir provides 146,880 acre-feet of storage. The multipurpose pool provides space for silt storage and 885 acres of water surface for fish, wildlife and recreation needs. Construction of the project was initiated in FY 1970 and completed in FY 1977. (See Table 26-A for total construction costs.)

Local Cooperation. Requirements are described in full on page 26-6 of FY 1988 Annual Report.

Operations During FY. Routine operation and maintenance activities continued.

21. SALT CREEK AND TRIBUTARIES, NE

Location. Salt Creek Basin comprises an area of about 1,627 square miles in and around Lincoln in southeastern Nebraska.

Existing Project. The authorized project consists of a system of 10 dams and reservoirs, channel clearing, enlarging and realignment, levees and necessary bridge alternations. Pursuant to Senate Resolution adopted August 7, 1964, which authorized a review of the Salt Creek survey report, additional units were placed in "inactive" classification. Construction of the project began in the spring of 1962. All work under the active portion of the project, consisting of the 10 dams and reservoirs and the channel improvements and levees through Lincoln, was completed in 1969. Funds were transferred to the project in FY 1980 with concurrence of Congressional Committees. These funds were used to determine an effective method of correction for the dispersive clay problem in the completed downstream levees through Lincoln. (See Table 26-A for total construction costs.)

Local Cooperation. Requirements are described in full on page 26-6 of FY 1988 Annual Report.

Operations During FY. Maintenance: Routine operation and maintenance activities continued.

22. SOUTH PLATTE RIVER BASIN, CO

Location. Flood control improvements in this project are along the South Platte River and its tributaries in Colorado.

Existing Project. General plan for flood control and other purposes to provide for construction of Chatfield Lake on the South Platte River, Bear Creek Lake on Bear Creek, and levee and channel improvements on the South Platte River. (See individual reports and Table 26-B for

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authorizing legislation).

23. THURMAN TO HAMBURG, IA

Location. The project area is approximately 110 square miles. It extends from Thurman, IA, on the north to the mouth of the Nishnabotna River on the south and from the Missouri River on the west to the bluffs on the east.

Existing Project. The flood problem was caused by floodwaters backing up behind the existing levees when drainage structures are closed during high flows on these rivers. Two pump stations have been built to alleviate this flooding in the southern half of the study area. The shared cost through construction was \$1,040,760 Federal and \$346,921 non-Federal.

Local Cooperation. Fremont County, IA and five drainage districts were the cost-sharing sponsors.

Operations During FY. The project was completed in April 1997. Final audit and project closeout are complete.

24. VAN BIBBER CREEK, CO

Location. Van Bibber Creek is a right bank tributary of Ralston Creek with the confluence in Arvada, CO. The potential project area includes approximately one mile of the downstream portion of the creek located partially in Arvada and partially in Jefferson County.

Existing Project. The proposed project would include channel improvements including an underground conduit to convey Van Bibber Creek flood waters to Ralston Creek.

Local Cooperation. Section 205, Flood Control Act of 1948, as amended, applies. The City of Arvada is paying the local share of this project.

Operations During FY. Plans and specifications activity for the FY consisted of sponsor acquisition of LERRD's and Project Cooperation Agreement review. Project coordination of remaining work is ongoing.

25. WOOD RIVER, GRAND ISLAND, NE

Location. This project is located in Hall County Nebraska, approximately midway between the city of Grand Island and Interstate 80.

Existing Project. This project consists of a five-mile long diversion channel with levees on both sides. The channel will divert Wood River flood flows to the Platte River. The diversion structure will be located downstream from the Highway 281 bridge that crosses the Wood River. The diversion channel will begin at that point and run eastward to the Platte River. The current county and city bridges that cross the channels will be designed and constructed by the sponsor. One bridge for the Union Pacific Railroad will be constructed. In addition, a two-mile long tie-off levee and small diversion channel will be built west of highway 281 to prevent Wood River flood flows from spilling into the Warm slough basin nearby and outflanking the diversion channel.

Local Cooperation. This project is authorized under the Water Resources Development Act (WRDA) of 1996, Section 101K modified by WRDA of 1999, Section 335. The Project Cooperation Agreement (PCA with the Central Platte Natural Resources District was executed on 2 May 2000. The current non-Federal cost estimate is \$4,134,000. The current Federal cost estimate is \$10,562,000, for a total project cost of \$14,696,000.

Operations During FY. The Railroad Relocation Contract with the Union Pacific Railroad was executed on 11 February 2000 and completed in FY 2001. The sponsor has obtained approximately 50% of the real estate acquisitions required for the project. The Conditional Letter of Map Revision (CLOMR) was submitted to FEMA for review and approval. Design changes were made to the original design to reflect the latest FEMA requirements.

26. INSPECTION OF COMPLETED FLOOD CONTROL WORKS

Flood Control Act of June 22, 1936, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion, in accordance with regulations prescribed by Secretary of the Army. District Engineers are responsible for administration of these regulations

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within the boundaries of their respective districts.

Inspections of completed local protection projects which have been turned over to local interests for maintenance and operation during the FY are set forth in Table 26-J, Inspections of Completed Local Protection Projects. FY 2001 costs were \$229,743.

27. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Under Sections 7 and 9, Flood Control Act of December 22, 1944, the Corps of Engineers is responsible for detailed scheduling of operations involving storage capacity reserved for or assigned to flood control in reservoirs constructed by the Bureau of Reclamation as well as those constructed by the Corps of Engineers. Costs for FY 2001 were \$299,610; and total through September 30, 2001 were \$10,062,025.

28. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Emergency Response Activities - Repair, Flood Fighting and Rescue Work (Public Law 99, 84th Cong., and antecedent legislation.)

The district coordinated with several states relative to drought preparedness actions and provided updates on Corps authorities regarding the provision of assistance under drought and emergency water conditions. The district provided technical assistance to the states of South Dakota for potential flooding and Nebraska for potential ice jams, during the spring 2001.

Operational Program Areas. FY costs as follows:

Preparedness:

All Hazards Planning Activities.....	\$ 408,450
All Hazards Training & Exercise.....	3,760
Facilities.....	33,607
National Centers of Expertise.....	0

Emergency Operations:

Response Operations.....	13,118
After Action Report.....	0
Post Flood Response.....	0

Acquisition of Supplies & Equipment.....	0
Support For Others.....	302,653

Rehabilitation of Flood Control Works:

Rehab. Federal Flood Control Works.....	6,261
Rehab. Non-Federal Flood Control Works..	0
Shore Protection.....	0
Field Investigations.....	0
Inspections.....	71,107
Interagency Levee Activities.....	0

Advance Measures:

Advance Measure Assistance.....	231
Field Investigations.....	46,976

Hazard Mitigation (By State):

Hazard Mitigation Team Activities.....	0
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Small Flood Control Projects Not Specifically Authorized by Congress (Sec. 205, 1948 Flood Control Act as amended, Public Law 858, 80th Cong., June 30, 1948 as amended.)

Federal costs for FY 2001 were \$427,749 for feasibility studies, plans and specifications and construction measures. See Table 26-L for detailed breakdown by project.

Emergency Bank Protection (Sec. 14, 1946 Flood Control Act, Public Law 526, 79th Cong., July 24, 1946 as amended.)

Operations under this heading were as follows: Federal costs for FY 2001 were \$100,913 for projects in the planning and design analysis phase and projects in the construction phase. See Table 26-L for detailed breakdown by project.

Environmental

29. CALIFORNIA BEND, NE

Location. The remnant river channel and floodplain land along river miles 648.5 - 650.0 along the Missouri River, in Washington County, about one mile east of Blair, NE.

Existing Project. The project to be modified is the Missouri River Navigation and Bank Stabilization Project. The California Bend modification will restore river flows through the historic river channel adjacent to the

navigation channel, to restore fish breeding, brood rearing, resting and feeding habitat, and to benefit the riverine ecosystem as a whole. The downstream end of a 1.5-mile long backwater will be enlarged to provide a permanent connection to the navigation channel, and about 1 mile of excavation will connect its upstream end to the river. This will create permanent flows through about 2.5 miles of channels. Some of the surrounding farmland will be restored to floodplain forest. Also several of the spur dikes along the navigation channel will be lowered to enable navigation flows to create shallow margins along the river.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Papio-Missouri River Natural Resources District is providing all needed cost-sharing, including real estate interests valued at approximately \$367,000, and cash of about \$699,000.

Operations During FY. Plans and specifications and Sponsor acquisition of real estate interests were ongoing in FY 2001.

30. CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX TRIBE, AND STATE OF SOUTH DAKOTA TERRESTRIAL WILDLIFE HABITAT RESTORATION

Location. Generally lands located in the state of South Dakota and acquired by the Secretary of the Army for the implementation of the Pick-Sloan Missouri River Basin program. Lands to be transferred to the State are Corps land located above the top of the exclusive flood pool of the Oahe, Big Bend, Fort Randall and Gavins Point projects and located outside of the external boundaries of a reservation of an Indian Tribe. Lands to be transferred to the Secretary of the Interior are lands located above the top of the flood pool of the Big Bend and Oahe projects and located within the external boundaries of the reservation of the Cheyenne River Sioux Tribe and the Lower Brule Sioux Tribe.

Existing Project. Review and submittal to congress of wildlife habitat restoration plans developed by the State and Indian Tribes. Accomplish the transfer of Corps of Engineers land to the State of South Dakota and the Department of Interior for the two Indian Tribes. Estimated total cost of the project is \$107,368,000.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is being borne by the Federal government with no cost to either local or tribal governments or the affected state. Therefore, no Project Cooperation Agreements are required. Restoration of terrestrial wildlife habitat loss programs are being accomplished by the transferees through the use of grant instruments until ten years from date of enactment under which the trust funds established under project authorization are fully capitalized.

Operations During FY. Coordination efforts with state and tribal entities continued. Grant agreements were implemented. Cultural resource preservation, cultural site protection and an environmental impact statement was completed.

31. HIDDEN LAKE/GREAT MARSH, NE

Location. A historic backwater adjacent to Missouri River miles 602.5-603.5, and a nearby marsh, in Sarpy County, about 1 mile south of Omaha and adjacent to Bellevue, NE.

Existing Project. The project being modified is the Missouri River Navigation and Bank Stabilization Project. The Hidden Lake modification is restoring a historic backwater of the river to restore fish breeding, brood rearing, resting and feeding habitat, and to benefit the riverine ecosystem as a whole. A one mile long backwater lake which was filled with sediment in a rare flood event has been excavated and reconnected at its downstream end to the river. The Great Marsh modification has removed sediment and encroaching plants to deepen and expand a marshy wetland, extending its life and benefiting the aquatic community. About 40 acres of wetland were excavated at an average of two feet deeper, increasing the marsh also in size. Total project costs are \$3,020,000, with a Federal share of \$2,266,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. Papio-Missouri River Natural Resources District provided all needed cost sharing including real estate interests.

Operations During FY. Construction was essentially complete and post-construction monitoring continued.

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32. LOWER DECATUR, NE

Location. The Missouri River's right (west) overbank including side channels, from river mile 684.5 to 689 on the Missouri River in Burt County, NE, about 2 miles southeast of Decatur, NE.

Existing Project. Modification of the Missouri River Bank Stabilization and Navigation Project (MRBSN) constructed from 1935 to 1982. Lower Decatur Bend is one of many bend cutoffs (straightenings) created by the Corps during channelization of the Missouri River for navigation and bank stabilization. The proposed project modification includes 3 main off-stream aquatic components: side-channel restoration, lowering of the riverward extent of closure spur dikes, and revetment lowering over an extended length to allow river flows to erode the river bank behind the revetment, thereby increasing the top width of the channel over an extended area. An opportunity exists at Lower Decatur Bend to restore the physical habitat to configurations more similar to those that existed prior to the channelization of this reach of the river. Total Project costs are estimated at \$6,018,000, with a Federal share of \$4,513,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Papio-Missouri River Natural Resources District is providing all needed cost sharing, including real estate interests valued at approximately \$574,000 and cash of about \$1,076,000.

Operation During FY. Feasibility studies were completed. Plans and specifications have been initiated.

33. MISSOURI RIVER FISH & WILDLIFE MITIGATION, IA, NE, KS, & MO

Location. The project extends along the Missouri River from Sioux City, IA, to the mouth near St. Louis, Mo.

Existing Project. To mitigate a portion of the fish and wildlife habitat losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project. Estimated total cost of the project is \$84,500,000 federal funds.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is being borne by the Federal

government with no cost to either local governments or the affected states. Therefore, no Project Cooperation Agreement is required. Although the four affected states are not participating financially in the project, the states are very actively involved in the planning and design of the project. The states also are participating in the project by furnishing perpetual easements for construction and operation on existing state-owned lands. The states of Missouri and Iowa are the primary donors of such easements.

Operations During FY. Efforts continued on acquiring land rights on 29,900 acres of land and agreements with the states for development on 18,200 acres of state-owned land, 16,900 of which is terrestrial habitat. Design work continued on the Blackbird-Tieville Bend and Kansas Bend. Construction continued at Tobacco Island and Deroin Bend.

34. NATHAN'S LAKE/DEER CREEK AQUATIC HABITAT IMPROVEMENT, NE

Location: The project is located in the Missouri River floodplain, several remnant wetland basins and a ditched creek channel, from river mile 632.8 to 633.5 on the Missouri River in Washington County, Nebraska, about 3 miles north of Omaha and 4 miles southeast of Ft. Calhoun, Nebraska.

Existing Project. Construction of Nathan's Lake and Mud Lake islands and shallow fingers, expansion of wetland areas, construction of a diversion sediment basin and the west ditch and west berm. Additional work will include emphasis on palustrine emergent wetland benefits as well as stream riparian restoration related to those wetlands and the river. This is the first Section 206 project authorized for study nationwide and the work will be a component of the sponsor's Missouri River Corridor Plan.

Local Cooperation. Section 206 of the Water Resources Development Act of 1996 (P.L. 104-303), as amended applies. The Papio-Missouri River Natural Resources District is the local sponsor and providing all necessary cost sharing including real estate interests.

Operations During FY. Construction on the project was substantially completed during FY 2001. The project is scheduled for completion in FY 2002.

**35. UPPER CENTRAL PLATTE VALLEY
COLFAX REACH, CO**

Location. The project is 13 miles downstream of Chatfield Reservoir on the South Platte River in the City and County of Denver from just upstream of Lakewood Gulch to approximately 500 feet downstream of Interstate 25. The length of the reach is approximately 3000 feet.

Existing Project. The project will reestablish and improve the ecosystem structures and functions by restoring fish and wildlife habitat through environmentally sensitive bank modification and creating a low flow meandering channel which existed in the past. Rock jetties, drop structures and a 250 cfs low flow channel will be included as project features. Wetlands and riparian communities will be reestablished along the east bank to create an improved wildlife corridor. Total project costs are currently estimated at \$6,160,000 with a Federal share of \$4,620,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. The Greenway Foundation with the support of the City Of Denver is providing all needed cost sharing including real estate interests.

Operations During FY. Plans and specifications were completed. Construction of the project was initiated with completion scheduled for FY 2003.

36. WEHRSPANN LAKE AQUATIC

Location. The existing Papio Dam #20 and its Wehrspann Lake are located on a tributary to the South Branch Papillion Creek, West Branch Papillion Creek Basin, Sarpy County, NE, about 4 miles southwest of Omaha. The subimpoundment is located in the headwaters of Wehrspann Lake, within the lake's flood control pool, and within the existing project's boundaries.

Existing Project. Wehrspann Lake Aquatic Improvement Project - Modification of Wehrspann Lake, completed in 1984 as Papio Dam #20 for flood control and recreation; Congressional District: NE-2. Wehrspann Lake site is located within Omaha, NE metropolitan area, and as such it is highly visible, heavily utilized and important ecological, recreational, and educational resource. The modification, a subimpoundment in the lake's flood control pool, will play an essential role in maintaining water quality and fish habitat within

Wehrspann Lake by decreasing the amounts of influent nutrients and especially sediment. Total project costs are currently estimated at \$2,660,000 with a Federal share of \$1,995,000.

Local Cooperation. Section 1135 of 1986 WRDA applies. Papio-Missouri River Natural Resources District is providing all needed cost sharing including real estate interests.

Operations During FY. Project construction was substantially complete in FY 2001.

**Multiple Purpose Projects Including
Power**

**37. BIG BEND DAM-LAKE SHARPE,
MISSOURI RIVER BASIN, SD**

Location. On the Missouri River, 987.4 miles above the mouth, near Fort Thompson, SD, and approximately 20 miles upstream from Chamberlain, SD. Dam is located in the upstream reach of Fort Randall reservoir (Lake Francis Case). Big Bend reservoir (Lake Sharpe) extends upstream to Pierre, SD.

Existing Project. A rolled earth-fill dam 95 feet high, with a crest length of 10,570 feet, a hydroelectric generating plant consisting of five 58,500 kilowatt units, three 67,276 kilowatt units, and a chute-type gated spillway. Reservoir provides gross storage of 1,859,000 acre-feet. Federal cost of the project was \$107,498,000. Construction began in September 1959 and was completed in September 1977, except for Code 710 recreation facilities.

Local Cooperation. None required except for recreation cost-sharing.

Operation During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, power production and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. During the period, 644,578,000 net kilowatt-hours of electricity were produced.

38. FORT PECK DAM AND LAKE, MT

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Location. The reservoir is in the Missouri River Valley in McCone, Valley, Garfield, Phillips, Petroleum, and Fergus Counties, MT. Dam is approximately 1,771.6 miles above the mouth of the Missouri River. Nearest towns are Glasgow, 17 miles northwest; and Nashua, nine miles north.

Existing Project. A hydraulic earthfill dam with a maximum height of 251 feet, with a crest length of 21,026 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 18,688,000 acre-feet at maximum operating pool. Work started on the original project in October 1933 and on the second power plant in August 1956. The project was completed in 1965. The power installations at the project were uprated in FY 1979. The five generators have a total output of 185,250 KW: two generators at 40,000 KW each, two generators at 43,500 KW each and one generator at 18,250 KW. See page 818 of 1965 Annual Report and page 905 of 1958 Annual Report for project details. Federal cost of the project was \$158,428,000,

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with the other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 753,359,000 net kilowatt hours of electricity.

39. FORT RANDALL DAM-LAKE FRANCIS CASE, MISSOURI RIVER BASIN, SD

Location. Located on the Missouri River in Charles Mix and Gregory Counties, SD, about 82 miles above Yankton, SD. Site is 880 miles above the mouth of the Missouri River and 148 miles above Sioux City, IA.

Existing Project. A rolled earth-fill dam with a maximum height of 165 feet; a crest length of 10,700 feet; and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 5,494,000 acre-feet at maximum operating pool. The power installation consists of eight units rated at 40,000 kilowatts each. Construction began in May 1946 and was completed in 1969, except for Code

710 recreation facilities. Federal cost of the project was \$199,066,000. Non-Federal contribution for constructing approaches to the Platte-Winner Bridge was \$720,000.

Local Cooperation. None required except for recreation cost-sharing and bridge approaches.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,245,699,000 net kilowatt hours of electricity.

40. GARRISON DAM MAJOR REHABILITATION, LAKE SAKAKAWEA, ND

Location. Located on the Missouri River in McLean and Mercer Counties, ND, about 11 miles south of Garrison, ND, and 9 miles west of Coleharbor, ND, 1,389.9 miles about the mouth and 75 miles above Bismarck.

Existing Project. Garrison Dam is a multi-purpose project consisting of a rolled earth-filled dam with a sheet pile cutoff, a hydroelectric power plant, and a reservoir with storage capacity of 23,821,000 acre feet for flood control, navigation, power, recreation, irrigation, and municipal water supply. This major rehabilitation project will replace the turbine runners on all five existing units with new runners designed to improve reliability and maximize efficiency over a broad range of operating conditions for a total project cost of \$37,122,000.

Local Cooperation. None required.

Operations During FY. Completed construction and installation of the turbine and generator on unit #5. The commissioning test process on unit #5 was initiated. Construction of the wicket gates, turbine runners, and generator components continued throughout the year. One set of wicket gates, one set of generator components, and the majority of two turbines were completed. Engineering and design analysis of the shaft stress was achieved. The initial planning for a supplement to the Major Rehabilitation Report to address the transformers and switchyard was initiated.

**41. GARRISON DAM-LAKE SAKAKAWEA,
MISSOURI RIVER BASIN, ND**

Location. Located on the Missouri River in McLean and Mercer Counties, ND, about 11 miles south of Garrison, ND, and 9 miles west of Coleharbor, ND. 1,389.9 miles above the mouth and 75 miles above Bismarck, ND.

Existing Project. A rolled earth-fill dam 11,300 feet long with a maximum height of 210 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 23,821,000 acre-feet. It provides five power units (three units rated at 109,250 kilowatts each and two units rated at 95,000 kilowatts each), three flood control tunnels, and a gated spillway. Federal cost of the project was \$299,938,000, including \$4,208,000 for major rehabilitation. Non-Federal contribution in connection with widening Snake Creek Embankment was \$687,000. Construction of the project was initiated in April 1946 and completed in 1966, except for recreational development using Code 710 funds.

Local Cooperation. None required except cost-sharing with the state of North Dakota for widening the Snake Creek Embankment and recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,496,289,000 net kilowatt hours of electricity.

**42. GAVINS POINT DAM-LEWIS AND CLARK
LAKE, MISSOURI RIVER BASIN, NE AND
SD**

Location. On the Missouri River in Yankton County, SD, and Knox County, NE, about four miles upstream from Yankton, SD, and 811.1 miles above the mouth.

Existing Project. A concrete and rolled earth-fill dam with a maximum height of 74 feet, and a reservoir for flood control, irrigation, navigation, hydroelectric power,

and other purposes, with a gross storage capacity of 492,000 acre-feet at maximum operating pool. The power installation consists of three units rated at 44,099 kilowatts each. Federal cost of the project was \$49,617,000. Construction of the original project was initiated in March 1952 and completed in 1964.

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 632,542,000 net kilowatt hours of electricity during FY 2001.

**43. OAHE DAM-LAKE OAHE, MISSOURI
RIVER BASIN, SD AND ND**

Location. Dam is on the Missouri River in Hughes and Stanley Counties, SD, about six miles northwest of Pierre, SD, and 1,072.3 miles above the mouth.

Existing Project. A rolled earth-fill dam with maximum height of 245 feet; a crest length of 9,300 feet; and a reservoir for flood control, irrigation, navigation, hydroelectric power, and other purposes, with a gross storage capacity of 23,137,000 acre-feet at maximum operating pool. It contains seven power units rated at 112,290 kilowatts each. Federal cost of the project was \$346,521,000. Construction was initiated in August 1948 and the project was placed in operation in June 1963.

Local Cooperation. None required except for recreation cost-sharing.

Operations During FY. Maintenance: Project was operated in conjunction with other Missouri River reservoirs for flood control, navigation, power production, and other multiple purpose uses. Normal operation and maintenance procedures were accomplished during the FY. Generating facilities produced 1,696,553,000 net kilowatt hours of electricity.

**44. MISSOURI RIVER, BETWEEN FT. PECK
DAM, MT AND GAVINS POINT DAM, SD,
NE**

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Location. The project is located along the Missouri River between Fort Peck Dam, MT, and a point 59 miles downstream of Gavins Point Dam, SD and NE.

Existing Project. Consists of undertaking measures, including maintenance and rehabilitation of existing structures, to alleviate bank erosion and related problems associated with releases from the six Missouri River main stem dams that the Secretary determines will be needed. In lieu of structural measures, lands may be acquired in affected areas from willing sellers. The costs of the measures shall be apportioned among project purposes as a joint-use operation and maintenance expense. Estimated Federal cost of the project is between \$140 million for construction or \$14 million for the land requisition alternative. Cost is limited to no more than \$3 million per FY.

Local Cooperation. Non-federal funds are not required for this project. One reach, the Missouri National Recreational River downstream from Gavins Point Dam, requires, under its separate authorization, that the landowners make available appropriate land interests to maintain the recreational and scenic qualities of the river and adjacent lands. In the other river reaches, lands can be acquired on a willing-seller basis if land acquisition is the recommended measure for erosion control at a given river site.

Operations During FY. Continued coordination for sloughing easements in pursuit of real estate acquisitions in response to requests from landowners. Monitored previously constructed Section 33 projects. Continued cumulative impacts study to determine effects of bank erosion.

45. PIERRE, SD

Location. The project area consists of the Missouri River just downstream of Oahe Dam near Pierre and Fort Pierre, South Dakota.

Existing Project. The legislation authorizes that the Secretary may acquire from willing sellers such land and property in the vicinity of Pierre, South Dakota or flood proof or relocate such property within the project area, as the Secretary determines is adversely affected by the full wintertime Oahe Powerplant releases. Total cost of this project is held at \$35,000,000 by authorizing legislation.

Local Cooperation. This project has no cost-sharing sponsor. The entire project is completely federally financed as the mitigation is for a problem caused by the Oahe Dam project. By funding the project 100 percent Federal, the costs are allocated to the Oahe Project with 45.83 percent of the costs considered as joint costs to allocate for repayment by the Western Area Power Administration (WAPA). When WAPA invokes the sub-allocation of 15.8 percent of power costs to future irrigation, the 45.83 percent joint use costs will actually result in a final cost share of 38.6 percent to be repaid by non-Federal interests.

Operations During FY. Throughout the year, coordination with affected property owners to prioritize and finalize buyback or flood proofing remedies for each tract affected occurred. Ongoing appraisal activities, title evidence, and acquisition of seventy-eight tracts with multiple owners resulted in relocation actions under the authority of PL 91-646. Fifty-four tracts and their affected owners received reimbursement under this authority. Owner's policies, warranty deeds and closing actions were also completed. An infrastructure agreement with the city of Pierre was executed in FY 2001. Development of an infrastructure with the city of Fort Pierre continued in FY 2001.

Miscellaneous

46. MISSOURI RIVER MASTER WATER CONTROL MANUAL REVIEW AND UPDATE

Location. The area being studied is the Missouri River basin, to include the Missouri River main stem system. States included in the study area include Nebraska, Montana, North Dakota, South Dakota, Iowa, Kansas, and Missouri.

Existing Project. During 1987 through 1992, the Missouri River basin experienced a moderate to severe drought, impacting upon the Missouri River main stem projects for the first time since filled in 1967. The drought has had severe impacts on people and industries that use the Missouri River and the main stem reservoirs for navigation, hydropower, water supply, and recreation. Some of the people impacted by the drought have stated that the current Master Water Control Manual for the Missouri River main stem system of reservoirs does not

OMAHA, NE, DISTRICT

adequately take into consideration the contemporary needs of the basin. The purpose of the Missouri River Master Water Control Manual Review and Update study is to determine the water control plan that best meets the needs of the Missouri River basin.

Local Cooperation. None required.

Operations During FY. The Northwestern Division (NWD) made considerable progress during the past year in moving the National Environmental Policy Act (NEPA) process forward.

In April of 2000, formal consultation of the current operation of the Mainstem System, the Missouri River Bank Stabilization and Navigation Project (Sioux City, IA to St. Louis, MO), and the current operation of the Kansas River Reservoir System was initiated. A Final Biological Opinion (BO), received from the U.S. Fish & Wildlife Service (USFWS) on 30 November 2000, concluded that current operations jeopardize the continued existence of the piping plover, interior least tern and pallid sturgeon.

As a component of the Reasonable and Prudent Alternative (RPA), the USFWS indicated in their Final BO that higher spring releases and lower summer releases from Gavins Point Dam are necessary to preclude jeopardy. On 31 August 2001, NWD published the Missouri River Master Manual Review and Update Revised Draft Environmental Impact Statement (RDEIS), which was the subject of full public review and comment as required by NEPA.

The RDEIS presented environmental effects of a set of six alternative water control plans for the Mainstem System – the current Water Control Plan (CWCP), a modified drought conservation plan (MCP), and four alternatives that add various Gavins Point Dam release changes to the MCP. These latter four alternatives, referred to as the Gavins Point (GP) options, address changes in water releases from Gavins Point Dam that the USFWS recommended in its Final BO. The release of the RDEIS marked the beginning of a six-month public comment period. Public workshops and hearings were held throughout the Missouri and Mississippi River basins and oral, written, and electronic comments were taken until 28 February 2002.

A Final Environmental Impact Statement (FEIS) will be prepared and circulated that addresses the Tribal and public comments received in response to the RDEIS and presents the impacts of the preferred alternative. The FEIS is scheduled for publication in May 2002. Following the FEIS, NWD will prepare a Record of Decision (ROD), revise the Master Manual, develop an

Annual Operating Plan (AOP) that conforms to the revised Master Manual, and implement the selected plan.

Implementation of a new water control plan is scheduled for March of 2003. No substantial change in the operation of the Mainstem reservoir system will be implemented until the ROD is signed and the Master Manual is revised.

47. NATIONAL EMERGENCY PREPARENESS PROGRAM (NEPP) AND SUPPORT FOR FEMA

P. L. 93-288 (and Antecedent Legislation)

Continuity of Operations (510)	\$	0
National Preparedness Planning (520)		88,071
Emergency Operations Center Support (530)		14,936
Catastrophic Disaster Training and Exercise (560)		<u>0</u>
Total Catastrophic Disaster Preparedness Program	\$	103,007

48. FLOOD CONTROL AND COASTAL EMERGENCIES (FC&CE)

Flood control work under Authorization Emergency Flood Control Activities, Flood Fighting. P. L. 84-99.

Disaster Preparedness (100)	\$	445,817
Emergency Operations (200)		13,118
Rehabilitation and Inspection Program (300)		77,368
Advance Measures (500)		47,207
Hazard Mitigation (600)		0
Reimbursable Activities (900)		<u>302,653</u>
Total FC&CE	\$	1,929,368

49. GENERAL REGULATORY FUNCTIONS

Permit Evaluation	\$	4,306,838
Enforcement		539,667
Studies		130,590
Environmental Impact Statement		69,937
Administrative Appeals		1,133
Reimbursable Activities		<u>191,834</u>
Total Regulatory	\$	5,239,999

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50. GENERAL INVESTIGATIONS

FY 2001 non-reimbursable costs totaled \$2,505,293 for all General Investigation activities. See Table 26-K which covers Surveys, Collection and Study of Basic Data, Research and Development, Preconstruction Engineering and Design (projects not fully authorized), Planning and Engineering under Proposed Program Legislation, and Preconstruction Engineering and Design (fully authorized projects).

OMAHA, NE DISTRICT

TABLE 26-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001
1.	Missouri River, Sioux City, IA to Mouth (Sioux City, IA to Rulo NE)	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	189,225,991 <u>1/</u> 189,225,991 <u>1/</u>
		Maint: Approp. Cost.	2,143,000 2,114,434	2,034,000 2,081,757	2,001,438 1,986,394	1,948,268 1,957,234	131,532,156 131,525,562
3.	Aberdeen & Vicinity, SD	New Work: Approp. Cost.	54,000 101,637	352,802 327,226	5,000 44,760	----- 3,948	839,759 839,747
	Required Contributed Funds	New Work: Approp Cost.	----- -----	30,084 4,539	250,000 20,744	----- 27,326	280,084 52,609
	Consolidated Summary	New Work: Approp. Cost.	54,000 101,637	382,886 331,765	255,000 65,504	----- 31,274	1,119,843 894,356
4.	Bear Creek Lake, CO	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	62,018,608 62,018,608
		Maint: Approp. Cost.	360,000 364,699	416,000 417,667	540,276 534,838	353,686 356,477	6,608,271 6,604,928
5.	Big Sioux River and Skunk Creek Sioux Falls, SD	New Work Approp. Cost.	----- -----	----- -----	525,000 297,450	3,696,000 3,892,130	4,221,000 4,189,580
	Required Contributed Funds	New Work: Approp Cost.	----- -----	----- -----	----- -----	450,000 -----	450,000 -----
	Consolidated Summary	New Work: Approp. Cost.	----- -----	----- -----	525,000 297,450	4,146,000 3,892,130	4,671,000 4,189,580
6.	Bowman-Haley Lake, ND	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	4,372,174 4,372,174
		Maint: Approp. Cost.	155,000 159,626	130,000 131,588	186,830 186,978	225,082 223,038	4,426,182 4,423,769
7.	Buford Trenton Irrigation District, ND (Land Acquisition)	New Work: Approp. Cost.	2,300,000 2,071,907	2,327,000 2,421,119	5,760,000 5,852,428	6,891,872 6,920,466	17,278,872 17,265,920

1/ Includes \$18,325,581 National Industrial Recovery Act funds, \$8,625,718 Emergency Relief Funds, and \$1,181,125 for previous project.

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TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001	
8.	Chatfield Lake, CO	New Work:						
		Approp.	-----	-----	-----	-----	95,444,010	
	Cost.	-----	-----	-----	-----	95,444,010		
	Required Contributed Funds	New Work:						
		Approp.	-----	-----	-----	-----	1,315,328	
	Cost.	-----	-----	-----	-----	1,315,328		
	Consolidated Summary	New Work:						
		Approp.	-----	-----	-----	-----	96,759,338	
		Cost.	-----	-----	-----	-----	96,759,338	
		Maint:						
9.	Cherry Creek Lake, CO	Approp.	955,000	783,000	831,042	1,306,828	16,118,100	
		Cost.	954,737	794,914	826,005	1,305,317	16,111,288	
		New Work:						
		Approp.	-----	-----	-----	-----	15,220,364	
	Cost.	-----	-----	-----	-----	15,220,364		
		Maint.						
		Approp.	1,237,000	1,326,000	396,322	620,480	15,934,276	
	Cost.	1,212,239	1,358,725	398,121	615,964	15,926,150		
	10.	Fall River Basin, SD (Cottonwood & Coldbrook)	New Work:					
			Approp.	-----	-----	-----	-----	5,538,432
Cost.		-----	-----	-----	-----	5,538,432		
		Maint.						
		Approp.	490,000	337,000	690,966	347,163	9,008,330	
Cost.	474,854	350,767	694,703	343,115	9,002,420			
11.	Logan Creek Pender, NE	New Work:						
		Approp.	2,422,000	1,083,100	14,000	(7,000)	4,155,113	
	Cost.	2,392,477	1,038,621	48,037	45,500	4,147,106		
	Required Contributed Funds	New Work:						
		Approp.	264,790	-----	-----	-----	394,090	
	Cost.	63,895	131,543	32,388	6,686	363,810		
	Consolidated Summary	New Work:,						
		Approp.	2,686,790	1,083,100	14,000	(7,000)	4,549,203	
	Cost.	2,456,372	1,170,164	80,425	52,186	4,510,916		
12.	Milk River, Malta, MT	New Work:						
		Approp.	(39,200)	-----	-----	(4,000)	1,479,618	
	Cost.	17,495	6,816	1,678	3,019	1,475,204		
	Required Contributed Funds	New Work:						
		Approp.	-----	-----	-----	-----	222,720	
	Cost.	938	-----	-----	-----	205,937		
	Consolidated Summary	New Work:						
		Approp.	(39,200)	-----	-----	(4,000)	1,702,338	
Cost.	18,433	6,816	1,678	3,019	1,681,141			

OMAHA, NE DISTRICT

TABLE 26-A (continued)

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001
13.	Missouri National Recreational River NE& SD	New Work: Approp. Cost.	150,000 117,322	416,000 235,697	900,000 777,252	983,000 1,176,555	4,548,259 4,397,692
	Required Contributed Funds	New Work: Approp. Cost.	----- -----	----- -----	12,774 7,500	16,500 7,722	669,274 655,222
	Consolidated Summary	New Work: Approp. Cost.	150,000 117,322	416,000 235,697	912,774 784,752	999,500 1,184,277	5,217,533 5,052,914
2,935,862		Maint. Approp. Cost.	196,000 229,911		65,000 246,985	241,879 727	(17) 2,935,862
14.	Missouri River Kenslers Bend, NE, to Sioux City, IA	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	11,294,414 11,294,414
		Maint. Approp. Cost.	59,000 57,132		38,000 41,152	145,555 145,685	134,144 132,130
							5,301,118 5,299,104
15.	Nishnabotna River, Hamburg, IA	New Work: Approp. Cost.	587,500 281,129	266,500 606,611	50,000 49,949	3,000 11,687	1,371,600 1,365,058
	Required Contributed Funds	New Work: Approp. Cost.	55,890 11,733	170,947 183,621	----- 10,490	----- 17,235	359,887 353,971
	Consolidated Summary	New Work: Approp. Cost.	643,390 292,862	437,447 790,232	50,000 51,439	3,000 28,922	1,731,487 1,719,029
16.	Papillion Creek and Tributaries Lakes, NE	New Work: Approp Cost.	----- -----	----- 1,091	----- 6,453	----- 2,040	66,612,215 <u>2/</u> 56
66,605,662 <u>2/</u>							
	Required Contributed Funds	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- 56	955,000 884,736
	Consolidated Summary	New Work: Approp. Cost.	----- -----	----- 1,091	----- 6,453	----- 2,040	112 67,567,215 67,490,398
		Maint: Approp. Cost.	593,000 581,127	532,000 552,855	598,822 599,595	611,050 609,138	10,876,316 10,873,153

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

2/ Does not include \$1,854,338 cost of inactive sites.

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001
17.	Pebble Creek Scribner, NE	New Work: Approp. Cost.	----- -----	----- 547	----- 258	----- (5,000) -----	2,720,728 2,716,954
	Required Contributed Funds	New Work: Approp Cost.	----- -----	----- -----	----- -----	----- -----	435,656 419,880
	Consolidated Summary	New Work: Approp. Cost.	----- -----	----- 547	----- 258	----- (5,000) -----	3,156,384 3,136,834
18.	Perry Creek, IA	New Work: Approp. Cost.	3,424,000 2,516,925	6,235,237 6,799,322	13,900,000 13,212,961	468,000 1,440,218	35,899,485 35,752,890
	Required Contributed Funds	New Work: Approp. Cost.	400,000 86,625	850,000 1,023,819	642,718 608,778	716,002 71,977	2,608,720 1,791,199
	Consolidated Summary	New Work: Approp. Cost.	3,824,000 2,603,550	7,085,237 7,823,141	14,542,718 13,821,739	1,184,002 1,512,195	38,508,205 37,544,089
20.	Pipestem Lake, ND	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	9,277,545 9,277,545
		Maint: Approp. Cost.	561,000 539,598	580,000 608,744	598,307 597,556	361,938 359,956	9,199,649 9,196,597
21.	Salt Creek and Tributaries, NE	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	12,197,621 <u>3/</u> 12,197,621 <u>3/</u>
		Maint. Approp. Cost.	757,000 750,354	728,000 741,767	725,646 725,776	655,088 650,977	17,320,010 17,314,860
23.	Thurman to Hamburg, IA	New Work: Approp. Cost.	----- 6,000	(30,237) (26,281)	----- -----	----- -----	1,040,763 1,040,763
397,587	Required Contributed Funds	New Work: Approp. Cost.	----- -----	26,028 26,281	----- -----	----- -----	397,587
1,438,350	Consolidated Summary	New Work: Approp. Cost.	----- -----	26,028 6,000	(30,237)----- -----	----- -----	
1,438,350							

OMAHA, NE DISTRICT

3/ Includes \$123,000 of government cost applicable to that portion of the project which is currently being carried in a deferred status.

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001
24.	Van Bibber Creek, CO	New Work: Approp. Cost.	216,000 252,741	50,200 77,715	(7,200) 10,401	47,000 62,188	1,113,589 1,110,104
	Required Contributed Funds	New Work: Approp. Cost.	----- 1,030	----- -----	----- -----	----- -----	125,200 125,200
	Consolidated Summary	New Work: Approp. Cost.	216,000 252,741	50,200 77,515	(7,200) 10,401	47,000 62,188	1,238,789 1,235,304
25.	Wood River, Grand Island, NE	New Work. Approp. Cost.	----- 246,744	----- 112,226	386,000 409,029	991,128 1,240,249	2,377,128 2,317,285
26.	Inspections of Completed Local Protection Projects	Maint. Approp. Cost.	238,000 231,759	224,000 232,590	160,269 160,371	229,200 229,743	5,846,945 5,846,945
27.	Scheduling Flood Control Reservoir Operations	Maint. Approp. Cost.	334,000 374,993	372,000 374,993	345,996 348,525	300,039 299,610	10,062,719 10,062,025
29.	California Bend, NE	New Work Approp. Cost.	137,000 136,570	35,000 30,543	200,495 192,614	75,000 78,036	720,995 709,867
	Required Contributed Funds	New Work. Approp. Cost.	----- -----	----- -----	100,000 3,985	----- 38,424	100,000 42,409
	Consolidated Summary	New Work. Approp. Cost.	137,000 136,570	35,000 30,543	300,495 196,599	75,000 116,460	820,995 752,276
30.	Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe, and State of SD Terrestrial Wildlife Habitat Restoration, SD	New Work. Approp. Cost.	----- -----	----- -----	2,500,000 893,862	4,636,855 6,058,974	7,136,855 6,952,836
31.	Hidden Lake/ Great Marsh, NE	New Work. Approp. Cost.	----- 200	15,000 8,126	15,000 12,600	15,000 15,172	2,251,000 2,241,037
	Required Contributed	New Work: Approp. Cost.	----- 61,843	----- 15,794	----- (1,358)	----- 879	650,000 642,070
	Consolidated Summary	New Work. Approp. Cost.	----- 62,043	15,000 23,920	15,000 11,242	15,000 16,051	2,901,000 2,883,107

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 26-A (continued)

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001
32.	Lower Decatur, NE	New Work. Approp. Cost.	307,000 351,728	100,000 135,983	205,000 178,845	70,000 86,400	950,000 922,734
33.	Missouri River Fish & Wildlife Mitigation, IA, NE, KS, MO	New Work: Approp. Cost.	1,374,000 1,603,873	4,070,000 3,374,515	4,700,000 4,258,705	2,075,000 3,377,896	29,038,000 28,970,137
34.	Nathan's Lake/ Deer Creek	New Work. Approp.		95,000	30,000 135,000	143,000	
403,000	Aquatic Habitat Improvement, NE	Cost.	71,192	52,102	19,178	254,312	396,784
	Required Contributed Funds	New Work. Approp. Cost.	----- -----	50,000	----- 30,196 18,241	72,000 22,281	122,000
71,438							
	Consolidated Summary	New Work. Approp.		95,000	80,000 135,000	215,000	
525,000	Funds	Cost.	71,192		83,018 37,419	276,593	
468,222							
35.	Upper Central Platte Valley, Colfax Reach	New Work. Approp. Cost.	----- -----	----- -----	536,000 524,733	1,280,000 1,257,845	1,816,000 1,782,578
36.	Wehrspann Lake Aquatic	New Work. Approp. Cost.	171,000 158,912	1,328,000 1,270,323	273,000 349,497	14,000 14,147	1,961,000 1,960,932
	Required Contributed Funds	New Work. Approp. Cost.	----- -----	506,000 303,376	94,000 223,616	----- 21,394	600,000 548,386
	Consolidated Summary Funds	New Work. Approp. Cost.	171,000 158,912	1,834,000 1,573,699	367,000 573,113	14,000 35,541	2,561,000 2,509,318
37.	Big Bend Dam- Lake Sharpe, Missouri River Basin, SD	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	107,497,597 107,497,597
		Maint. Approp. Cost.	7,121,300 6,623,326	6,035,000 6,667,015	6,515,756 6,479,037	5,840,398 5,492,538	127,991,727 <u>4/</u> 127,596,130 <u>4/</u>
38.	Fort Peck Lake, MT	New Work: Approp. Cost.	----- -----	----- -----	----- -----	----- -----	158,428,080 158,428,080

OMAHA, NE DISTRICT

Maint.					
Approp.	4,141,000	4,391,000	4,031,141	5,453,523	110,154,498 <u>4/</u>
Cost.	4,891,338	4,505,403	4,078,081	5,358,928	110,051,525 <u>4/</u>

4/ Includes Special Recreation Use Fees.

TABLE 26-A (continued) COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total Cost to September 30, 2001
39.	Fort Randall Dam-Lake Francis Case, Missouri River Basin, SD	New Work:					
		Approp.	-----	-----	-----	-----	199,065,883
		Cost.	-----	-----	-----	-----	199,065,883
		Maint.					
		Approp.	9,118,000	7,844,000	7,968,478	8,267,771	195,301,383 <u>4/</u>
		Cost.	8,887,964	8,147,631	7,963,253	8,005,448	195,029,285 <u>4/</u>
40 & 41.	Garrison Dam Lake Sakakawea, Missouri River Basin, ND	New Work:					
		Approp.	-----	-----	-----	-----	295,729,613
		Cost.	-----	-----	-----	-----	295,729,613
	Federal Funds	Maint					
		Approp.	7,540,000	9,050,000	8,063,896	9,546,471	210,940,040 <u>4/</u>
		Cost.	7,942,739	9,165,548	8,060,510	8,928,405	210,314,656 <u>4/</u>
		Major Rehab:					
		Approp.	1,035,000	4,500,000	8,500,000	7,304,000	25,921,310
		Cost.		555,288	4,424,506	5,558,299	10,756,437
25,859,111							
	Required Contributed Funds						
		Approp.	-----	-----	-----	-----	686,961
		Cost.	-----	-----	-----	-----	686,961
42.	Gavins Point Dam-Lewis & Clark Lake, Missouri River Basin, NE and SD	New Work:					
		Approp.	-----	-----	-----	-----	49,617,239
		Cost.	-----	-----	-----	-----	49,617,239
		Maint:					
		Approp.	6,227,000	6,984,000	5,889,002	6,494,579	144,258,993 <u>4/</u>
		Cost.	5,965,884	7,336,181	5,908,727	6,485,674	144,234,427 <u>4/</u>
43.	Oahe Dam-Lake Oahe, Missouri River Basin, SD & ND	New Work:					
		Approp.	-----	-----	-----	-----	346,520,603
		Cost.	-----	-----	-----	-----	346,520,603
		Maint:					
		Approp.	11,669,200	10,685,000	12,236,271	10,287,948	221,159,919 <u>4/</u>
		Cost.	10,292,662	12,081,727	12,253,913	9,970,228	220,816,975 <u>4/</u>
44.	Missouri River Between Ft. Peck Dam MT & Gavins Point Dam, SD and NE	Maint.					
		Approp.	737,000	2,183,000	227,000	344,740	7,226,740
		Cost.	1,528,412	2,385,152	285,554	345,072	7,226,740
45.	Pierre, SD	New Work:					
		Approp.	-----		340,000	7,500,000 6,512,000	14,352,000

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

		Cost.	-----	339,282	6,009,111	7,960,685	14,309,078
46.	Missouri River	Maint:					
	Master Water	Approp.	1,800,000	1,863,000	669,109	896,290	24,875,400 <u>5/</u>
	Control Manual	Cost.	1,810,941	1,814,557	662,650	951,193	24,875,400 <u>5/</u>
	Review and Update						

4/ Includes Special Recreation Use Fees.

5/ Included in the Miscellaneous Section of the Text.

TABLE 26-B

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		MISSOURI RIVER, SIOUX CITY, IA TO MOUTH (SIOUX CITY, IA TO RULO, NE)	
	Jan 12, 1927	Appropriation of \$12 million authorized for securing a 6 foot depth from Quindaro Bend (Kansas City, MO to Sioux City, IA).	H. Doc. 1120, 69th Cong.
	July 3, 1930	Appropriation of \$15 million additional allotments totaling \$29,153,108 made by Public Works Administration under provisions of National Industrial Recovery Act of 1933, and \$9,669,791 allotted under provisions of Emergency Relief Appropriations Act of 1935.	PL 71-520 PL 73-67
	Aug 30, 1935	For completion of project from mouth to Sioux City, IA.	H. Doc 238, 73rd Cong. PL 74-409
	Mar 2, 1945	For a channel of 9-foot depth and 300-foot width.	H. Doc. 214, 76th Cong. PL 79-14
3.		ABERDEEN & VICINITY, SD	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
4.		BEAR CREEK LAKE, CO	
	Aug 13, 1968	A flood control reservoir for protection of metropolitan Denver, CO.	S. Doc. 87, 90th Cong. PL 90-483
5.		BIG SIOUX RIVER AND SKUNK CREEK, SIOUX FALLS, SD	
	Water Resources Development Act Of 1996	A flood control project for raising levees and diversion dams, modification of chute and stilling basin, and providing bridge improvements.	Section 101 PL 104-303
6.		BOWMAN-HALEY LAKE, ND	
	Flood Control Act of 1962	Flood Control reservoir and water supply.	H. Doc. 574, 87th Cong. PL 87-874
7.		BUFORD TRENTON IRRIGATION DISTRICT, ND (LAND ACQUISITION)	
	Section 336(a) Water Resources Development Act of 1996		PL. 104-303
8.		CHATFIELD LAKE, CO	
	Flood control Act of 1950	Flood control reservoir and channel improvements to provide downstream protection for Denver, CO.	H. Doc. 669, 80th Cong. PL 81-516
	Water Resources Development Act of 1986	Modified 1950 Flood Control Act to operate dam and other Federal improvements to achieve authorized level of protection, beginning at dam and ending 82 miles downstream. Reassigns a portion of the storage space in the lake project to joint flood control-conservation purposes. Modified	H. Doc. 1013, 99th Cong. PL 99-662

OMAHA, NE DISTRICT

1974 WRDA to exempt prohibition of encroachment for Mineral Ave/ Ken Caryl Rd. ext & transmission line.

TABLE 26-B (Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
9.		CHERRY CREEK LAKE, CO	
	Aug 18, 1941	Initiation and partial accomplishment of project.	H. Doc. 426, 76th Cong. PL 77-228
	Dec 22, 1944	Completion of plan approved in Act of Aug 18, 1941.	H. Doc. 426, 76th Cong. PL 78-534
	Dec 22, 1944	General comprehensive plan, Missouri River Basin.	H. Doc. 475, and S. Docs. 191 and 247, 78th Cong. PL 78-534
10.		FALL RIVER BASIN, SD	
	Aug 18, 1941	Provide flood control to the town of Hot Springs, SD.	H. Doc. 655, 76th Cong. PL 77-228
11.		LOGAN CREEK, PENDER, NE	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
12.		MILK RIVER, MALTA, MT	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
13.		MISSOURI NATIONAL RECREATIONAL RIVER, NE AND SD	
	National Parks and Recreation Act of 1978	Preservation and enhancement of the Missouri River between the reaches from Gavins Point Dam, NE & SD to Ponca State Park, NE.	PL 95-625
14.		MISSOURI RIVER, KENSLERS BEND, NE , TO SIOUX CITY, IA	
	Aug 18, 1941 June 30, 1948	Construction of dike, revetments.	H. Doc. 821, 76th Cong. PL 77-228 PL 80-858
15.		NISHNABOTNA RIVER, HAMBURG, IA	
	Flood Control Act of 1948	Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
16.		PAPILLION CREEK AND TRIBUTARIES LAKES, NE	
	Flood Control Act of 1968	Series of flood control reservoirs, providing protection for the metropolitan areas of Omaha, NE.	H. Doc. 349, 90th Cong. PL 90-485
	Water Resources Development Act of 1986	Authorized additional \$4.8 million for channel improvement on Big Papillion Creek, and to Union Pacific RR bridge, recreation trail and flood warning system.	H. Doc. 1013, 99th Cong. PL 99-662
17.		PEBBLE CREEK, SCRIBNER, NE	
	June 30, 1948	Levee and channel improvement for local protection - Section 205.	858, 80th Cong.
18.		PERRY CREEK, IA	

Water Resources
Development Act
of 1986 and 2000

Provide flood protection for Perry Creek, Iowa.

Section 401a,
PL 99-662
Section 227
PL 106-541

TABLE 26-B (Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
19.		PICK-SLOAN MISSOURI BASIN PROGRAM (OMAHA DIST.)	
	June 28, 1938	Adopted general comprehensive plan for Missouri River basin and authorized \$9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong. PL 75-761
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE and authorized additional \$7 million.	H. Doc. 842, 76th Cong. PL 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized additional \$200 million.	H. Doc. 475, and S. Docs. 191 and 247, 78th Cong. PL 78-534 PL 79-526
	July 24, 1946	Authorized additional \$150 million for prosecution of general comprehensive plan for Missouri River Basin.	
	May 17, 1950	Authorized additional \$250 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 81-516
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized additional \$217,710,000.	H. Docs. 549 and 642, 81st Cong. PL 83-780 PL 83-776
	Sep 3, 1954	Authorized \$5,384,014 to compensate Sioux Indians for reservation lands required for Oahe, South Dakota project.	
	May 2, 1956	Modified general comprehensive plan for Missouri River Basin by deletion of construction of Red Willow Dam and Reservoir, NE, and addition of construction of Wilson Dam and Reservoir, KS.	PL 84-505
	July 3, 1958	Expanded general comprehensive plan for Missouri River Basin and authorized additional \$200 million.	H. Doc. 409, 84th Cong. PL 85-500
	July 14, 1960	Authorized additional \$207 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 86-645
	Dec 30, 1963	Authorized additional \$80 million for prosecution of general comprehensive plan for Missouri River Basin and modified the plan to include work protection and rectification works below Garrison Dam.	PL 88-253
	June 18, 1965	Authorized additional \$116 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 89-042
	Aug 13, 1968	Authorized additional \$38 million for prosecution of general comprehensive plan for Missouri River Basin.	PL 90-483
	June 19, 1970	Authorized additional \$109 million for prosecution of general comprehensive plan for Missouri River Basin.	H. Doc. 91-748 and S. Doc. 91-895 PL 91-282
	Dec 24, 1970	Changed comprehensive plan name to Pick-Sloan Missouri Basin Program.	S. Doc. 91-1100, 91st Cong. PL 91-576
	Dec 31, 1970	Oahe Dam and Reservoir, ND.	H. Doc. 91-23 and PL 91-611 PL 92-222
	Dec 23, 1971	Authorized additional \$101 million for prosecution of Pick-Sloan Missouri Basin Program.	
	Mar 7, 1974	Authorized additional \$72 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 93-251
	July 8, 1976	Authorized additional \$85 million for prosecution	PL 94-347

OMAHA, NE DISTRICT

	Nov 16, 1977	of Pick-Sloan Missouri Basin Program. Authorized additional \$59 million for prosecution of Pick-Sloan Missouri Basin Program.	PL 95-189
20.	Flood Control Act of 27 Oct 1965	PIPESTEM LAKE, ND Provide flood control for Jamestown, ND and downstream areas.	H. Doc. 266, 89th Cong. PL 89-298

TABLE 26-B (Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
21.	July 3, 1958	SALT CREEK AND TRIBUTARIES, NE Series of dams and channel improvements for flood control around Lincoln, NE.	H. Doc. 396, 84th Cong. PL 85-500
22.	May 17, 1950	SOUTH PLATTE RIVER BASIN, CO Adopted plan of improvement for South Platte River Basin and authorized \$26.3 million for initiation and partial accomplishment.	H. Doc. 669, 80th Cong. PL 81-516
	May 12, 1967	Authorized additional \$2 million for prosecution of plan.	PL 90-17
	Aug 13, 1968	Authorized additional \$12 million for prosecution of plan.	PL 90-843
	Jun 19, 1970	Authorized additional \$21 million for prosecution of plan.	PL 91-282
	Dec 23, 1971	Authorized additional \$37 million for prosecution of plan.	PL 92-222
	Mar 7, 1974	Authorized additional \$15 million for prosecution of plan.	PL 93-251
	Jul 8, 1976	Authorized additional \$22 million for prosecution of plan.	PL 94-347
	Nov 16, 1977	Authorized additional \$3 million for prosecution of plan.	PL 95-189
23.	Water Resources Development Act of 1986	THURMAN TO HAMBURG, IA Install pumping facilities to prevent flooding in the Thurman to Hamburg area of the Missouri River in western Fremont County, IA.	Section 1152 PL 99-662
24.	Flood Control Act of 1948	VAN BIBBER CREEK, CO Section 205 of the Flood Control Act of 1948 as amended; flood damage reduction	
25.	Water Resources Development Act of 1996 and 1999	WOOD RIVER, GRAND ISLAND, NE Five-mile long diversion channel with levees.	Section 101k PL 104-303 and and Section 335 PL 106-53
29.	Nov 17, 1986	CALIFORNIA BEND, NE Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
30.	Water Resources Development Act of 1999 and 2000	CHEYENNE RIVER SIOUX TRIBE, LOWER BRULE SIOUX TRIBE AND STATE OF SOUTH DAKOTA AND TERRESTRIAL WILDLFE HABITAT RESTORATION Land transfer, mitigation and cultural work within the State of South Dakota	PL 106-53 Section 540 PL 106-541
31.	Nov 17, 1986	HIDDEN LAKE/GREAT MARSH Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
32.	Nov 17, 1986	LOWER DECATUR, NE Section 1135(b) of the Water Resource Development Act of 1986 as amended; environmental improvement	PL 99-662

33.	Water Resources Development Act of 1986 and 1999	MISSOURI RIVER FISH & WILDLIFE MITIGATION, IA, NE, KS, MO Mitigate fish and wildlife losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project.	Section 601(a), PL 99-662 and Section 334, PL 106-53
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TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
34.	Water Resources Development Act Of 1986	NATHAN'S LAKE, NE Mitigate fish and wildlife losses resulting from the construction and operation of the Missouri River Bank Stabilization and Navigation project.	Section 601(a), PL 99-662 and Section 334, PL 106-53
35.	Nov 17, 1986	UPPER CENTRAL PLATTE VALLEY, COLFAX REACH Section 1135 (b) of the Water Resource Development Act of 1986, as amended; environmental improvement	PL 99-662
36.	Nov 17, 1986	WEHRSPANN LAKE AQUATIC, NE Section 1135(b) of the Water Resource Development Act of 1986 as amended; environmental improvement	PL 99-662
37.	Dec. 22, 1944	BIG BEND DAM - LAKE SHARPE, SD Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
38.	June 16, 1933 Aug 30, 1935 May 18, 1938	FORT PECK LAKE, MT Construction of earth dam, as recommended by Chief of Engineers Sep 30, 1933, was approved by Executive Order by the President and included in Public Works Administration program, Oct 14, 1933 as authorized by the National Industrial Recovery Act of 1933 and adopted by the River and Harbor Act of 1935 (PL 74-409). Completion, maintenance, and operation of a hydroelectric power plant, subject to certain provisions in act respecting transmission and sale of electric energy. Also authorizes installation of additional power-generating facilities by Secretary of War when deemed necessary in judgment of Bureau of Reclamation.	H. Doc. 238, 73rd Cong. PL 74-409 PL 75-529
39.	Dec 22, 1944	FORT RANDALL DAM - LAKE FRANCIS CASE, SD Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong. PL 78-534
40 – 41.	Dec. 22, 1944 PWA 1968	GARRISON DAM - LAKE SAKAKAWEA, MISSOURI RIVER BASIN, ND Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong. PL 78-534
42.	Dec. 22, 1944	GAVINS POINT DAM - LEWIS AND CLARK LAKE, MISSOURI RIVER BASIN, NE AND SD Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Doc. 247, 78th Cong.

PL 78-534

43.	Dec. 22, 1944	OAHE DAM - LAKE OAHE, MISSOURI RIVER BASIN, SD & ND Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong.
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TABLE 26-B (Continued) AUTHORIZING LEGISLATION

See Section in Text	Date of Authorizing Act	Project and Work Authorized	Documents
44.	Water Resources Development Act of 1988	MISSOURI RIVER BETWEEN FT. PECK DAM ,MT & GAVINS POINT DAM, SD & NE Undertake measures to alleviate bank erosion and related problems associated with releases along the Missouri River from the six main stem dams.	Section 33, PL 100-676
45.	Water Resources Development Act of 1999	PIERRE, SD Mitigation for flooding caused by the Oahe Dam Project to the cities of Pierre and Ft. Pierre, SD.	PL 106-53
46.	Dec 22, 1944	MISSOURI RIVER MASTER WATER CONTROL MANUAL REVIEW AND UPDATE Expanded general comprehensive plan for flood control and other purposes in the Missouri River Basin.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong. PL 78-534

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 26-C

OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Cost	Cost to September 30, 2001	
		Full Report See Annual Report For	Construction	Operation and Maintenance
Missouri River, Sioux City, IA to Fort Benton, MT	Complete	1948	3,123,141	644,863
Small Navigation Project at Sioux City, IA	Complete	1970	43,582	88,716

OMAHA, NE DISTRICT

TABLE 26-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Cost	Cost to September 30, 2001	
		Full Report See Annual Report For	Construction	Operation and Maintenance
Belle Fourche, Cheyenne River, SD <u>1/</u>	Complete	1940	37,410	
Big Sioux River at Sioux City, IA <u>3/</u>	Complete	1982	7,479,899	-
Blackbird Creek Near Macy, NE <u>2/</u>	Complete	1970	262,479	-
Buffalo Creek, Meadow Grove, NE <u>2/</u>	Complete	1974	293,016	-
Buffalo Creek, Scranton, ND <u>2/</u>	Complete	1960	102,980	-
Cedar Canyon Dam, Rapid City, SD	Complete	1960	120,482	-
City of Aurora, Westerly Creek, CO	Complete	1955	150,000	-
Clarkson, NE, Maple Creek	Complete	1967	191,282	-
Council Bluffs, IA (Act of 1936)	Complete	1939	-	-
Council Bluffs, IA (Act of 1944)	Complete	1954	2,557,680	-
Deadman's Gulch, Sturgis, SD <u>2/</u>	Complete	1981	3,000,000	-
Dry Creek, Hawarden, IA	Complete	1964	400,000	-
East Nishnabotna River at Red Oak, IA <u>2/</u>	Complete	1986	2,154,016	-
Floyd River, Sioux City, IA	Complete	1970	11,556,667	-
Forsyth, MT	Complete	1950	255,177	-
Frazer-Wolf Point, MT	Complete	1982	435,000	-
Gering Valley, NE	Complete	1971	5,989,663	-
Glasgow, MT	Complete	1939	16,832	-
Great Falls, MT	Complete	1991	11,905,000	-
Greybull, WY	Complete	1960	248,507	-
Havre, MT	Complete	1958	1,825,881	-
Herreid, Spring Creek, SD	Complete	1954	50,216	-
Hooper, NE <u>2/</u>	Complete	1968	326,667	-
Ida Grove, IA <u>2/</u>	Complete	1972	522,344	-
Indian Creek at Emerson, IA <u>2/</u>	Complete	1986	333,000	-
Jamestown Reservoir, ND	Complete	1950	-	-
Linton, ND <u>2/</u>	Inactive	1973	-	-
Little Papillion Creek, NE	Complete	1976	3,643,111	-
Little Sioux River, IA	Complete	1992	20,630,000	-
Loup River, Columbus, NE <u>2/</u>	Complete	1973	1,000,000	-
Lower Heart River, ND	Complete	1964	1,961,173	-
Lower Heart River, Mandan, ND <u>2/</u>	Complete	1991	1,153,430	-
Madison, NE, Union and Taylor Creeks <u>2/</u>	Complete	1967	234,839	-
Mandan, Heart River, ND	Complete	1960	676,916	-
Marmarth, ND	Complete	1960	169,498	-
McCook Lake, SD	Complete	1958	147,627	-
Miles City, MT	Inactive	1956	-	-
Missouri River, Aten, NE	Complete	1951	578,791	-

1/ Completed as a Public Works Administration project.

2/ Authorized by Chief of Engineers.

3/ Design Deficiency Correction initiated in FY00.

TABLE 26-E (Continued) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to September 30, 2001	
			Construction	Operation and Maintenance
Missouri River Levee System, IA, NE, KS and MO	Complete	1993	37,964,177	-
Missouri River, Niobrara, NE	Complete	1945	99,370	-
Mott, ND	Deferred	-	-	-
Mud Creek, Broken Bow, NE <u>2/</u>	Complete	1976	1,000,000	-
Nishnabotna River at Hamburg, IA	Complete	1948	236,000	-
Norfolk, NE	Complete	1971	3,400,504	-
Omaha, NE	Complete	1954	5,903,640	-
Pierce, NE	Complete	1967	296,597	-
Platte River Near Schuyler, NE <u>2/</u>	Complete	1948	74,940	-
Platte River and Lost Creek, Schuyler, NE	Complete	1971	257,398	-
Platte River and Tributaries, NE	Inactive	-	1,538,269	-
Rapid Creek, Rapid City, SD	Complete	1980	1,004,000	-
Saco, MT	Complete	1958	67,793	-
Sacred Heart Hospital, Yankton, SD	Complete	1978	184,380	-
Sheridan, WY <u>3/</u>	Complete	1976	2,618,809	-
Shields River, Near Clyde Park, MT <u>2/</u>	Complete	1951	25,747	-
Sioux Falls, SD	Complete	1966	5,288,707	-
Vaughn, MT, Sun River <u>2/</u>	Complete	1971	457,582	-
Waterloo, NE	Complete	1970	237,883	-
West Point, NE	Complete	1966	149,596	-
Yellowstone River, W. Glendive, MT	Complete	1960	230,294	-

2/ Authorized by Chief of Engineers.

3/ Includes inactive segment.

OMAHA, NE DISTRICT

TABLE 26-F OTHER MULTIPLE PURPOSE PROJECTS INCLUDING POWER

Project	Status	For Last Full Report See Annual Report For	Cost to September 30, 2001	
			Construction	Operation and Maintenance
Gavins Point Dam - Lewis and Clark Lake, Relocation of Niobrara, NE	Complete	1980	13,516,459	-
Williston, ND Water Intake	Complete	1981	988,583	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 26-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Deauthorization Document	Federal Funds Expended	Contributed Funds Expended
Billings, MT (Western Unit)	1976	Sec. 201, FC Act 1950 23 Mar 81	75,000	-
Boulder, CO	1976	FC Act 1950 WRDA of 1986 17 Oct 86	142,666	-
Buffalo, Johnson County Diversion Channel, WY	1961	FC Act 1950 WRDA of 1986 17 Oct 86	-	-
Castlewood Lake, Douglas County, CO	1943	PL 77-228 WRDA of 1986 17 Oct 86	-	-
Davids Creek Lake, IA	1972	Sec. 203, PL 90-483 WRDA of 1986 17 Oct 86	-	-
Dayton, WY	1956	Sec. 12, PL 93-251 WRDA of 1974 5 Aug 77	-	-
Giles Creek, Elkhorn, NE	1952	Sec. 12, PL 93-251 WRDA of 1974 6 Nov 77	-	-
Indian Creek Lake, IA	1969	Sec. 12, PL 93-251 WRDA of 1974 4 Jan 74	135,000	-
Lake Herman (Dredging), SD	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Little Nemaha River, Nemaha County, NE	1973	Sec. 204, PL 89-298 WRDA of 1986 17 Oct 86	-	-
Milk River, Havre, MT	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Miles City, MT	1982	FC Act of 1950 Section 1001(b) WRDA 1986	282,200	-
Morrison, Bear Creek, CO	1950	Sec. 12, PL 93-251 WRDA of 1974 5 Aug 77	30,000	-
Oahe Dam - Lake Oahe (Wildlife Restoration), ND	N/A	FC Act of 1970 Section 1001(b) WRDA 1986	0	-
Redwater River and Hay Creek, Bell Fourche, SD	1966	Sec. 12, PL 93-251 WRDA of 1974 4 Jan 74	1,000	-

The following investigations for flood control called for by Flood Control Acts and committee resolutions were deauthorized by WRDA of 1986, 17 Oct 86; Aowa & South Creek, NE; Bow Creek, NE; Cannonball River, ND; James River, ND & SD; Judith River Basin, MT; Niobrara River Basin, NE, SD & WY; Omaha Creek, NE; South Dakota Lakes, SD; Weeping Water Creek, NE; Windpower at Ft. Peck Lake, MT; Yellowstone River below Billings, MT; South Platte River, Denver-Ft. Lupton-Ft. Morgan, CO; Lower Big Sioux River IA & SD; Eagle Bay Highway Bridge, Missouri River Basin, ND; Sheridan, WY (Stage III); Missouri River Levee System Units: R531, R540, R553, R555, R577, R589, R603, R610, R623, R644, R645, R652, R661, R669, R676, R682, R686, R703, R717, R719, R725, R728, R742, R750.

OMAHA, NE DISTRICT

TABLE 26-G (continued) DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Deauthorization Document	Federal Funds Expended	Contributed Funds Expended
Shell Creek, NE	1962	Sec. 12, PL 93-251 WRDA of 1974 3 Oct 78	71,000	-
Upper Missouri River, SD Streambank Erosion Control Project	N/A	Sec. 1001(a), PL 89-298 WRDA of 1986 17 Oct 86	-	-
Vermillion River and Tribs, SD	1968	Sec. 12 PL 93-251 WRDA of 1974 4 Jan 74	208,000	-

The following investigations for flood control called for by Flood Control Acts and committee resolutions were deauthorized by WRDA of 1986, 17 Oct 86; Aowa & South Creek, NE; Bow Creek, NE; Cannonball River, ND; James River, ND & SD; Judith River Basin, MT; Niobrara River Basin, NE, SD & WY; Omaha Creek, NE; South Dakota Lakes, SD; Weeping Water Creek, NE; Windpower at Ft. Peck Lake, MT; Yellowstone River below Billings, MT; South Platte River, Denver-Ft. Lupton-Ft. Morgan, CO; Lower Big Sioux River IA & SD; Eagle Bay Highway Bridge, Missouri River Basin, ND; Sheridan, WY (Stage III); Missouri River Levee System Units: R531, R540, R553, R555, R577, R589, R603, R610, R623, R644, R645, R652, R661, R669, R676, R682, R686, R703, R717, R719, R725, R728, R742, R750.

MISSOURI RIVER LEVEE SYSTEM, SIOUX CITY, IA TO RULO, NE

TABLE 26-H

	Unit	Miles of Levee	Status
L627-624	Mosquito Creek Levee	14.2	Complete 1950
L601	Watkins-Waubonsie Ditch Levees	15.0	Complete 1966
L594	Pleasant Valley Levee	11.4	Complete 1964
R580	Nebraska City Levee	0.2	Complete 1950
L575	Thurman-Hamburg Levee	45.8	Complete 1950
R573	Otto County Drainage District No. 2	5.9	Complete 1950
R562	Peru Dike	7.6	Complete 1950
L561-550	Atchison County Levee District No. 1	41.3	Complete 1952
R548	Brownville-Nemaha Levee	19.5	Complete 1952
L536	Mill Creek Levee	13.6	Complete 1952
R520	Richardson County Drainage District No. 8	6.3	Complete 1960
R613	Papillion Creek-Platte River Levee	14.0	Complete 1971
R616	Bellevue-Papillion Creek Levees	4.5	Complete 1987
L611-614	Mosquito-Keg Creek Levees	22.0	Complete 1988
L627, L624, L561-550	Remedial Studies on Completed Units		Studies Complete
Comprehensive	Restudy of Levee System		Studies Complete

PICK-SLOAN MISSOURI RIVER BASIN PROGRAM

TABLE 26-I (See Section 19 of Text)

Project	Estimated Federal Cost	Estimated Non-Federal Cost
Fort Peck Lake, MT <u>1/</u> , <u>2/</u>	158,428,000	1,103,000
Garrison Dam, Lake Sakakawea, ND <u>1/</u> , <u>2/</u> <u>3/</u>	321,588,701	1,516,000
Missouri River Levee System, IA, NE, KS and MO (Sioux City, IA to Rulo, NE) <u>1/</u>	37,931,000	4,618,000
Oahe Dam-Lake Oahe, SD and ND <u>1/</u> , <u>2/</u>	346,521,000	2,320,000
Big Bend Dam-Lake Sharpe, SD <u>1/</u> , <u>2/</u>	107,498,000	302,000
Fort Randall Dam, Lake Francis Case, SD <u>1/</u> , <u>2/</u>	199,066,000	1,609,000
Gavins Point Dam, Lewis & Clark Lake, SD & NE <u>1/</u> , <u>2/</u>	49,617,000	137,000
Gavins Point Dam, Lewis & Clark Lake, SD & NE-Relocation of Niobrara, NE <u>2/</u>	13,516,000	-
Omaha, NE <u>2/</u>	5,904,000	362,000
Council Bluffs, IA <u>2/</u>	2,558,000	146,000
Missouri River, Garrison Dam to Lake Oahe, ND <u>2/</u>	9,413,000	270,000
Cherry Creek Lake, CO <u>1/</u> , <u>2/</u>	15,220,000	285,000

1/ Details presented on individual report.

2/ Completed.

3/ Active portion of project.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J

(See Section 26 of Text)

Location	Month Inspected
Montana	
* Clyde Park, Shields River	Sep 99
* Yellowstone River, Water Plant, Livingston	Sep 99
* Milk River, Malta (Sewer Line)	Oct 99
* Yellowstone River, Livingston (N.E. Livingston Bridge)	Sep 99
* Milk River, Chinook (Finley Bridge)	Oct 99
* Battle Creek, Chinook (Uhrh Bridge)	May 99
* East Gallatin, Near Bozeman (Intst Bridge)	Sep 99
* Yellowstone River, Near Livingston (Hwy 89 - 7 Miles East of Livingston)	Sep 99
* Shields River, Near Livingston (Hwy 89)	Sep 99
* Teton River, Near Choteau (Hwy 89)	Oct 99
* Madison River, Quake Lake	Sep 99
* Milk River, Malta	Oct 00
* Missouri River, Bank Stabilization Project, Frazer	Sep 94
* Dearborn River - Hwy 287, Wolf Creek	Oct 99
* Muddy Creek - Int Hwy 15 - Frontage Road, Vaughn	Oct 99
* Badger Creek - Hwy 89, Browning	Sep 99
- Saco, MT, Beaver Creek	Oct 01
- Glasgow, MT, Milk River	Nov 01
- Havre, MT, Milk River	Oct 01
- Forsythe, MT, Yellowstone River	Aug 01
- West Glendive, MT, Yellowstone River	Aug 01
- Vaughn, MT, Sun River	Oct 01
- Great Falls, MT, Sun River	Oct 01
- Malta, MT, Milk River	Oct 01
** Cotton Wood Levee, Glendive, Montana	Dec 00
Wyoming	
* Baldwin Creek, Lander (Sewage Lagoons)	Sep 99
* Shoshone River, Bank Protection, Lovell	Aug 92
* Shoshone River, Byron	Oct 98
* Powder River, Arvada	Oct 98
* Medicine Bow River, Elk Mountain	Jan 97
- Greybull, WY, Big Horn River	Aug 01
- Sheridan, WY, Big and Little Goose Creeks	Aug 01
North Dakota	
* Cannonball River	Oct 97
- Mandan, ND, Lower Heart River	May 01
- Marmarth, ND, Little Missouri River	Sep 01
- Scranton, ND, Buffalo Creek	May 99
Colorado	
* South Platte River, Kersey	Aug 99
* South Platte River, Merino	Sep 99
* South Platte River, Iliff	Sep 99

- * Denotes Section 14 Projects
 - Denotes Section 205 Projects under PL 84-99
 ** Denotes PL-84-99 Non-Federal Projects

OMAHA, NE DISTRICT

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued)

(See Section 26 of Text)

Location	Month Inspected
Colorado (Continued)	
* South Platte River, Platteville	Sep 99
* Big Thompson River, Johnstown	Aug 99
* Cache La Poudre River, Ft. Collins (Water Treatment Plant)	Sep 96
* South Platte River, Fort Lupton Hwy 85	Aug 99
* South Platte River, Logan County (Bridges 175A & 173)	Sep 99
* Downstream Chatfield, Denver	Jun 01
- Aurora, CO, Westerly Creek	Feb 02
- Aurora, CO, Kelley Road Dam	Sep 00
- Littleton Chatfield Downstream Channel, Denver, CO	Jun 01
** Town of Wiggins, CO	May 01
** Town of Erie, CO	May 01
** Fort Collins North, CO	May 01
** Fort Collins Wastewater Treatment Plant, CO	May 01
South Dakota	
* Missouri River, Bank Protection, Greenwood	Aug 01
* Bad River, Bank Protection, Fort Pierre	Jun 00
* Big Sioux River, Schofield Bridge, Near Flandreau	Jun 00
* Rapid Creek, Rapid City	Sep 99
* Missouri River, Sacred Heart Hospital, Yankton	Aug 97
* Vermillion River, Vermillion	May 00
* Big Sioux River, Harrisburgh	Jun 00
* Big Sioux River, Jefferson	Jun 00
* Marne Creek, Yankton	May 00
* White River, Winner	Oct 01
* James River, Yankton	Jun 00
* Missouri River, White Swan & Sunshine Bottoms	Aug 98
* Big Sioux River, Plymouth County	Jun 99
- Elk Point, SD, Big Sioux River, Union County	Jul 01
- Big Sioux River, North Sioux City, SD	Jul 01
- Sioux Falls, SD, Big Sioux River	Jul 01
- Belle Fourche, SD, Belle Fourche River	Sep 01
- Rapid City, SD, Rapid Creek	Sep 01
- Hot Springs, SD, Fall River Channel	Sep 01
- Herreid, SD, Spring Creek	Sep 01
- Sturgis, SD, Deadman Gulch	Sep 01
** City of Waubay, SD	Dec 99
** Centerville, SD	Fed 97
Nebraska	
* Blackbird Creek, Burt County	May 97
* Platte River, Brady	Feb 95
* Elm Creek, Decatur	Nov 98
* Nebraska City South Table Creek	Jul 99
* Wigle Creek, Homer	Dec 98

* Denotes Section 14 Projects
 - Denotes Section 205 Projects under PL 84-99
 ** Denotes PL-84-99 Non-Federal Projects

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued)

(See Section 26 of Text)

Location	Month Inspected
Nebraska (Continued)	
* South Elkhorn River, near Ewing, NE	May 99
* Elk Creek, Jackson	Dec 98
* Elk Creek, Willis	Nov 01
* Middle Pebble Creek, Snyder	Nov 98
* Elm Creek, Burt County	Nov 01
* Platte River, Camp Ashland	Nov 98
* West Branch Papillion Creek, Omaha, NE	Oct 99
* Logan Creek, Near Bancroft	Dec 98
* Platte River, Near North Bend	Aug 98
* Elkhorn River, Near Beemer	May 01
* East Bow Creek, Wynot	Jun 01
* Cedar River, Spalding	Dec 01
- Macy, NE, Blackbird Creek	May 01
- Lincoln, NE, Salt Creek & Tributaries	Sep 01
- Meadow Grove, NE, Buffalo Creek	Jun 01
- Columbus, NE, Loup River	Sep 01
- Broken Bow, NE, Mud Creek	Sep 01
- Lost Creek, Columbus, NE	Aug 01
- Omaha, NE Missouri River	Jun 00
- Waterloo, NE, Elkhorn River	May 01
- West Point, NE, Elkhorn River	May 01
- Pierce, NE, Elkhorn River	May 01
- Clarkson, NE, Middle Fork, Maple Creek	Jul 01
- Hooper, NE, Elkhorn River	Jun 01
- Norfolk, NE, North Fork, Elkhorn River	Jun 01
- Madison, NE, Union & Taylor Creeks	Jun 01
- Schuyler, NE, Lost Creek & Platte River	Sep 01
- Pender, NE, Logan Creek	Oct 01
- Little Papillion Creek, Omaha, NE	Oct 98
- Scribner, NE, Elkhorn River	Jun 01
- Howells, NE, Maple Creek	Jun 01
- Big Papio Creek, Omaha, NE	Oct 98
- Gering, NE, Gering Drain	May 01
- Sidney, NE, Lodgepole Creek	Apr 01
Missouri River Levees	
- L624 & L627, Mosquito Creek & Sieck Levees, Council Bluffs, IA	Jul 01
- L601, Watkins Levee District	Aug 01
- L601, Miller-Sturgeon Levee District	Aug 01
- L601, Missouri River Levee District #1	Aug 01
- L594, Waubansie Drainage District	Apr 99
- L594, Pleasant Valley Levee District	Apr 99
- L575, Benton-Washington Levee District	Mar 99
- L575, Northwest Atchison Levee District	Dec 99
- L575, McKissock Island Levee District	Dec 99
- L575, Buchanan Levee District	Dec 99
- L561, L550, L536, Atchison County Levee District	Jul 01
- L611-614, M & P Missouri River Levee District	Aug 01
- R613, Papio Natural Resources District	Dec 99

- * Denotes Section 14 Projects
 - Denotes Section 205 Projects under PL 84-99
 ** Denotes PL-84-99 Non-Federal Projects

OMAHA, NE DISTRICT

INSPECTION OF COMPLETED LOCAL PROTECTION PROJECTS

TABLE 26-J (Continued)

(See Section 26 of Text)

Location	Month Inspected
Missouri River Levees (Continued)	
- R548, Little Nemaha Levee District, Brownville, NE	Aug 00
- R548, Little Nemaha Levee District #3	Aug 00
- R520, Richardson Co. Levee Dist. #8	Sep 99
- R573, Otoe County Drainage Dist. #2	Nov 01
- R616, Sarpy County Papio Natural Resources District	Dec 99
- R562, Peru Levee District	Sep 99
** Union Dike, Valley, NE	Sep 99
** No Name Dike, Valley, NE	Sep 99
** Big Papio Cr. West Branch 96 th – 44 th , Papillion, NE	Oct 99
** YMCA Camp Kataki, South Bend, NE	Nov 98
** Omaha Fish & Wildlife Club, NE	Apr 00
** Clear Creek, Ashland, NE	Oct 00
** Lake Waconda SID #1, Union, NE	Sep 00
** Hawaiian Village SID #97, Papillion, NE	Sep 00
** Ames Diking District, Ames, NE	Jan 99
** SID #101 Hansen Lake	Jun 00
** Fremont County Bd of Sup Peterson	Jul 99
** Big Papio L st to Capehart Rd, Omaha, NE	Feb 00
** Whitehead, Riverton, IA	Aug 99
** Cottrelle Diking District	Jul 99
** Corning Levee Dist #2 Mill Creek D.D.	May 00
Iowa	
* West Nishnabotna River, Mills County Bridge, Near Malvern	Jul 99
* East Nishnabotna River, Page County Bridge, Near Essex	Jul 99
* Mucky Creek, Mapleton, IA	Oct 01
* Little Sioux River, Anthon	Oct 01
* Keg Creek, Minden	Jul 99
* Soldier River, Near Ute	Oct 01
- Council Bluffs, IA, Missouri River	Jul 00
- Ida Grove, IA, Maple River-Odebolt Creek	Aug 01
- Sioux City, IA, Floyd River	Aug 01
- Hawarden, IA, Dry Creek	Aug 01
- Hamburg, IA L575, Nishnabotna River	Dec 99
- Little Sioux, IA, Intercounty D.D., Little Sioux River	Sep 00
- Little Sioux, IA, Nagel D.D., Little Sioux River	Sep 01
- Little Sioux, IA, Bennett-McDonald-Smithland D.D., Little Sioux River	Oct 01
- Red Oak, IA, East Nishnabotna River	Jul 01
- Emerson, IA, Indian Creek, Mills County	Jul 01
- Little Sioux, IA, Monona-Harrison Ditch Control, Monona County	Sep 01
** Winslow Seg #1 (Up Stream) Hamburg, IA	Aug 99
** Fremont County Bd of Sup Bowman, Zach, Roth	Jul 99

- * Denotes Section 14 Projects
 - Denotes Section 205 Projects under PL 84-99
 ** Denotes PL-84-99 Non-Federal Projects

ACTIVE GENERAL INVESTIGATIONS

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 26-K

(See Section 50 of Text)

Item	Federal Cost Fiscal Year 01	Totals By Subtotal and Category
SURVEYS (Category 100)		
Flood Damage Prevention Studies (120)		
Reconnaissance Study (121)		
Indian Creek, Council Bluffs, IA	20	
Niobrara & Missouri Rivers	72,648	
Feasibility Study (122)		
James River, ND & SD	2,038	
Antelope Creek, Lincoln, NE	4	
Lower Platte River and Tribs., NE	193,513	
Subtotal		268,223
Special Studies (140)		
Watershed/Ecosystem Reconnaissance (143)		
Zuni & Sun Valley Reaches, South Platte	99,843	
Watershed/Ecosystem Feasibility (144)		
Zuni & Sun Valley Reaches, South Platte	299,731	
Subtotal		399,574
Comprehensive Studies (150)		
Feasibility Study (152)		
Yellowstone River Corridor, MT	50,539	50,539
Review of Authorized Projects (160)		
Review of Completed Project: Feasibility Study (164)		
Chatfield, Cherry Creek & Bear Creek	192,113	192,113
Miscellaneous Activities (170)		
Special Investigations (171)	148,560	
FERC Licensing Activities (172)	2,384	
Interagency Water Resources Development(173)	27,370	
North American Waterfowl Management Plan(176)	2,711	
Subtotal		181,025
Coordination Studies with Other Agencies (180)		
Cooperation With Other Water Resources Agencies (181)	18,174	
Cooperation with States (186)	312,094	
Subtotal		330,268
TOTAL (Category 100)		1,421,742
COLLECTION AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Management, Omaha, NE	84,790	
National Flood Proofing Cmet (NFPC)	5,005	
Quick Responses	5,939	
SS -May Creek, Bismarck, ND	0	
SS - N. Fork, Elkhorn River, CO	0	
SS - Polk, NE	0	
SS – Heart River, Morton County, ND	7	
SS – Winslow, NE, Nonstructural F.H.	891	
SS – Glendive, MT	37	
SS – North Platte River, Converse County	66,406	
SS – Yellowstone River, Glendive, MT	98,601	
Technical Services, General	78,272	
Hydrologic Studies (260)		
General Hydrologic Studies (262)	26,958	
TOTAL (Category 200)		366,906
ACTIVE GENERAL INVESTIGATIONS		

OMAHA, NE DISTRICT

TABLE 26-K (Continued)**(See Section 50 of Text)**

Item	Federal Cost Fiscal Year 01	Totals By Subtotal and Categories
PRECONSTRUCTION ENGINEERING AND DESIGN - PROJECTS NOT FULLY AUTHORIZED (Category 400)		
Antelope Creek, Lincoln, NE (451)	215,435	
Watertown & Vicinity, SD (451)	6,555	
Lower Yellowstone River Diversion Dam (451)	67,792	
Sand Creek Watershed, Wahoo, NE (451)	175,811	
Gregory County Hydroelectric Pumping Storage, SD (460)	5,000	
		=====
TOTAL (Category 400)		470,593
PRECONSTRUCTION ENGINEERING AND DESIGN - PROJECTS FULLY AUTHORIZED (Category 600)		
Western Sarpy & Clear Creek, NE (651)	246,050	246,050
		=====
GRAND TOTAL GENERAL INVESTIGATIONS		2,505,291

FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

TABLE 26-L (See Section 28 of Text)

Project Name	Stage	Fiscal Year 01 Cost
Flood Control and Coastal Emergencies		
Disaster Preparedness (100)	-	445,817
Emergency Operations (200)	-	13,118
Rehabilitation & Inspection Program (300)	-	77,368
Emergency Water Supplies & Drought Assistance (400)	-	0
Advance Measures (500)	-	47,207
Hazard Mitigation (600)	-	0
Support for Others		<u>302,653</u>
Total (FCCE)		886,163
Section 205:		
Logan Creek, Pender, NE	C	45,500
Aberdeen & Vicinity, SD	C	3,948
Milk River, Malta, MT	C	3,019
Nishnabotna River, Hamburg, IA	C	11,687
Van Bibber Creek, Arvada, CO	P	62,188
Denison, IA	F	76,410
Verdigre, NE	F	2,493
Burt & Washington Counties, NE	F	30,151
Livingston, MT	F	2,022
Cold Brook Creek, Hot Springs, SD	F	15,740
Sidney, NE	C	16,439
Ponca Creek, Lynch, NE	F	30,500
Heart River, Mandan, ND	F	21,674
Mosquito Creek, Council Bluffs, IA	F	1,344
Knife River, Beulah, ND	F	21,145
Yellowstone River, Glendive, MT	F	30,439
Crow Creek, Cheyenne, WY	F	20,692
Tongue & Yellowstone Rivers, Miles City	F	<u>16,103</u>
Total (Section 205's)		411,494
Section 14:		
James River Rd. (CR 213), SD	C	136
Elk Creek, Lancaster County, NE	PDA	85,158
Coulson Park Landfill, Billings, MT	C	(10,826)
County Road M16, IA	F	11,643
North Platte River, Casper, WY	F	4,738
Beal Slough, Lincoln, NE	F	597
Salt Creek, Lincoln, NE	F	<u>273</u>
Total (Section 14's)		91,719
Total Flood Control Activities		\$ 1,389,376
L = Litigation R = Recon P = Plans & Specs C = Construction F = Feasibility - = Does Not Apply PDA = Planning & Design Analysis (Section 14 only)		

OMAHA, NE DISTRICT

TABLE 26-M

**ENVIRONMENTAL
Modification of projects for the purpose of improving
the quality of the environment in the public interest.**

(Includes Section 1135, Public Law 99-662, as amended and Section 206, Public Law 104-303, as amended.)

Study/Project and Location	Fiscal Year 01 Federal Funds Expended	Fiscal Year 01 Contributed Funds Expended
California Bend, NE	78,036	38,424
Cheyenne River Sioux Tribe, Lower Brule Sioux Tribe and State of South Dakota Terrestrial Wildlife Habitat Restoration	6,058,974	-----
Coordination Account Funds (1135)	31,552	-----
Coordination Account Funds (206)	21,257	-----
Glenn Cunningham Lake, NE	188,989	-----
Heron Haven, NE	7,090	-----
Hidden Lake Restoration, NE	15,172	879
Kingfisher Point, CO	29,058	-----
Livingston, MT	3,931	-----
Lower Decatur Bend, NE	86,400	-----
Missouri River Fish & Wildlife Mitigation, IA, NE, KS & ND	3,377,896	-----
Missouri River Levee Unit L536	3,572	-----
Nathan's Lake, NE	254,312	22,281
Plattsmouth Bend Chute, NE	381,919	-----
Preliminary Restoration Plan (1135)	13,896	-----
Preliminary Restoration Plan (206)	17,680	-----
Upper Central Platte Valley (Colfax Reach), CO	1,257,845	-----
Wehrspann, Lake Aquatic, NE	14,146	21,394

KANSAS CITY, MO, DISTRICT

The district comprises a portion of southwestern Iowa; northwestern, central and western Missouri; northern Kansas; southern Nebraska; and a portion of northeastern Colorado embraced in drainage basin of the Missouri River and tributaries from Rulo, Nebraska, to the mouth. Report on navigation project for section of Missouri River from Sioux City, Iowa, to Rulo, Nebraska, is in report of Omaha District.

IMPROVEMENTS

Navigation	Page	Multiple Purpose Projects Including Power	
1. Missouri River, Sioux City,IA to Mouth (Rulo, NE, to Mouth)	27-2	26. Harry S. Truman Dam and Reservoir, Osage River, MO	27-8
2. Missouri River Fish and Wildlife Mitigation,IA,NE,KS, and MO	27-2	27. Stockton Lake, Sac River, MO	27-9
Flood Control		Work Under Special Authorities	
3. Blue River Basin, Kansas City,MO	27-3	28. Continuing Authorities Program	27-9
4. Blue River Channel, Kansas City,MO	27-3	29. Emergency Response Activities	27-10
5. Brush Creek, Kansas City, MO		General Investigations	
6. Clinton Lake, Wakarusa River, KS	27-3	30. General Investigations	27-11
7. Harlan County Lake, Republican River, NE	27-4	Other Activities	
8. Hillsdale Lake, Big Bull Creek,KS	27-4	31. Mississippi River Main Stem Model Development	27-11
9. Kanopolis Lake, Smoky Hill River,KS	27-4	32. Catastrophic Disaster Preparedness Program	27-11
10. Little Blue River Lakes, MO	27-4	33. Missouri River Basin Collaborative Water Resources, Planning/Partnering Process	27-11
11. Long Branch Lake, Little Chariton River, MO	27-5	34. Regulatory Program	27-11
12. Melvern Lake, Marais des Cygnes (Osage) River, KS	27-5	Tables	
13. Milford Lake, Republican River, KS	27-5	Table 27-A Cost & Financial Statement	27-12
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24. Scheduling of Flood Control Reservoir Operations	27-8		
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REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

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Navigation

1. MISSOURI RIVER, SIOUX CITY, IA, TO MOUTH (RULO, NE, TO MOUTH)

Location. Jefferson, Madison, and Gallatin Rivers conjoin at Three Forks, Montana, to form the Missouri River, which flows southeasterly 2,315 miles (1960 mileage) across or along seven states to the Mississippi River, 17 miles above St. Louis. For description see page 1149, Annual Report for 1932. The river is commercially navigable from Sioux City, Iowa, to the mouth, a distance of 732 miles. The portion of project in Kansas City District extends from Rulo, Nebraska, to the mouth, a distance of 498 miles.

Previous Projects. For details see page 1891 of Annual Report for 1915, and pages 1153 and 1175 of Annual Report for 1938.

Existing Project. A channel of 9-foot depth and width not less than 300 feet, obtained by revetment of banks, construction of permeable dikes to contract and stabilize the waterways, cutoffs to eliminate long bends, closing minor channels, removal of snags, and dredging as required. The improved reach within the Kansas City District extends from the mouth to Rulo, Nebraska, a distance of 498.4 miles. The Bank Stabilization and Navigation features of the project were completed in September 1980. For the reach from Rulo, Nebraska, to the mouth, the total construction cost was \$237,942,190 including \$8,665,594 for previous project. River access sites have been completed at 11 locations. Ordinary and extreme stage fluctuations are 16 and 38 feet, respectively.

Local cooperation. Cooperation from benefited localities may be required where any improvement may confer special benefit. The receipt of contributions from private parties are to be expended along with Government funds upon authorized work where such work would be in the interest of navigation, as authorized by 1915 Rivers and Harbors Act. Secretary of the Army approved general principle of cooperative construction on Missouri River below Kansas City on basis that 25 percent of cost of any special installation shall be paid by the United States and 75 percent by local interests. Total contributed by local interests in cooperation with the United States from 1918 to June 30, 1964, was \$675,663, of which \$8,647 was returned to contributors. Local interests must share in cost of recreation facilities in accordance with provisions of the Federal Water Project Recreation Act of 1965. Local interests have

contributed \$171,816 for cost sharing on construction of recreation in addition to constructing portions of the facility.

Terminal facilities. A listing of terminal facilities are included in Missouri River Navigation Charts and can be obtained from Kansas City District Engineer for a small fee.

Operations during fiscal year. Routine maintenance of dikes and revetments along the lower river was accomplished by contract. Field hired labor accomplished emergency construction of a new dike to correct a chronic low water navigation problem. Contract and District personnel to improve the aquatic habitat of the river constructed over 116 notches. District personnel also accomplished other work items: Channel reconnaissance, stream gauging condition studies, surveys and mapping, engineering and design, surveys and layouts of construction, and supervision and administration. Project tonnage on the river for CY 2001 is estimated at 8.0 million tons, excluding waterway improvement materials. District estimates the recreation use on the Missouri River (NWK) at 1.2 million recreation days annually.

2. MISSOURI RIVER FISH AND WILDLIFE MITIGATION, IA, NE, KS, and MO

Location. This project extends along the Missouri River from Sioux City, Iowa, to the Mouth near St. Louis, a river distance of 732 miles. This location is coincident with the Bank Stabilization and Navigation Project on the river.

Existing project. The purpose of this project is to mitigate losses of fish and wildlife habitat resulting from construction and operation of the Missouri River Bank Stabilization and Navigation Project. The major components of the Mitigation project are acquisition, design, development and monitoring of aquatic and terrestrial habitat. The mitigation can be implemented on either existing publicly owned lands or could involve acquisition of private lands from willing sellers. WRDA86 authorized 29,900 acres of mitigation on non-public lands and 18,200 acres on existing public land. WRDA99 authorized an additional 118,650 acres for mitigation. The estimated fully funded cost of the project (2001) is \$90,407,000 all Federal. Kansas City District has overall project management responsibility. Omaha District is involved in the implementation of the project in the States of Iowa and Nebraska.

Local cooperation. There is no non-Federal sponsor for the project. The U.S. Fish & Wildlife Service and the states of Iowa, Nebraska, Kansas, and Missouri are voluntarily serving on a coordinating team, which is actively involved in ongoing project activities and site-specific operation and maintenance.

Operations during fiscal year. Funding was continued for land acquisition and construction of mitigation features. Procedures for biological monitoring are being drafted. O&M during construction is being formulated with local agencies. Land was purchased or easements obtained at

Copeland Bend, Iowa; Corning, Thurnau, Derion Bend, Worthwine Island, and Eagle Bluffs, Missouri. Design activities were carried out at Louisville Bend, Iowa; Kansas Bend, Nebraska; Tieville-Decatur Bends, Iowa; Columbia Bottoms, Overton Bottoms, Lower Hamburg Bend, and Worthwine Island, Missouri. Construction activities occurred at Tobacco Island, Nebraska; Derion Bend, Eagle Bluffs, Overton Bottoms, and Columbia Bottoms, Missouri.

Flood Control

3. BLUE RIVER BASIN, KANSAS CITY, MO

Location. Along the left bank of the Blue River from U.S. Highway 71 upstream for a distance of about 1-1/4 miles in Jackson County, Missouri, to the Bannister Federal Complex levee.

Existing project. The recommended project includes construction of approximately 1-1/4 miles of levee to provide flood protection to 280 acres in the Dodson Industrial Area and surrounding area in Kansas City. Estimated Federal cost through construction of the project (2004) is \$12,332,000, and estimated non-Federal cost of lands damages and relocations is \$6,785,900. Funds were provided in FY 2002 for a new construction start.

Local Cooperation. The Project Cooperation Agreement (PCA) was executed in September 2001.

Operations during fiscal year. Preconstruction engineering and design continued with preparation of the Design Documentation Report and plans and specifications.

4. BLUE RIVER CHANNEL, KANSAS CITY, MO

Location. Along the Blue River and tributaries in Jackson County, Missouri.

Existing Project. Project consists of 12.5 miles of improved channel along the Blue River within Kansas City, Missouri. Estimated Federal cost through construction of the project (2001) is \$220,000,000, and estimated non-Federal cost of lands, damages and relocations is \$32,500,000.

Local Cooperation. Section 2, Flood Control Act of June 22, 1936 applies. The City of Kansas City, Missouri, passed a resolution of intent on December 9, 1975 to provide the required assurances of local cooperation when requested. The Kansas City District Engineer signed the Section 221 agreement on September 8, 1983.

Operations during fiscal year. All work on stages 1 and 2 has been completed. The Stage 3 reach of the project consists of four construction contracts. The 12-19th Street contract and the 19th to Stadium Drive construction contracts are complete. Construction is underway on the Stadium Drive to Brush Creek contract. The Plans and Specifications for the remaining contract have been initiated. Design for three Union Pacific Railroad bridges has been completed.

5. BRUSH CREEK, KANSAS CITY, MO

Location. A major tributary of the Blue River in Kansas City, Missouri, and Johnson County, Kansas, draining a highly urbanized 29-square-mile area in the two states.

Existing project. The authorized project consists of improving about 7,500 feet of the channel from near Roanoke Parkway downstream to near Troost Avenue in Kansas City. At the request of the sponsor, Kansas City, Missouri, a modified project was built which provides identical flood protection, but which also accommodates park and recreation development in the authorized reach. Estimated fully funded Federal cost of the modified project (1996) is \$14,464,000; and estimated non-Federal cost of lands, damages, and cash is \$19,526,000.

Local cooperation. The City of Kansas City and the Corps of Engineers entered into a Local Cooperation Agreement (LCA) on the project in March 1991.

Operations during fiscal year. The dedication of the project was in June 1995. The project was turned over to the local sponsor in January 1997.

6. CLINTON LAKE, WAKARUSA RIVER, KS

Location. Damsite is on Wakarusa River about 4 miles southwest of Lawrence, in Douglas County, Kansas. The lake extends into Shawnee and Osage Counties, Kansas.

Existing project. An earthfill dam about 9,250 feet long constructed to a height of about 114 feet with an uncontrolled spillway in left abutment. Total reservoir storage capacity 397,200 acre-feet (258,300 for flood control, 28,500 for sediment reserve, and 110,400 for multipurpose storage for municipal and industrial waste supply and recreation). Cost of constructing the completed project was \$57,415,433. Construction was initiated in January 1972, and the project was placed in operation in November 1977.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Reimbursement in the estimated amount of \$6,768,000 is required for water supply storage in accordance with the Water Supply Act of 1958. A contract was signed by the State on September 6, 1978 and was approved by the Secretary of the Army on October 30, 1978. Utilization of storage was initiated in December 1979. Repayment also began at that time.

Operations during fiscal year. Visitation for FY 2001 was 7,043,736 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

7. HARLAN COUNTY LAKE, REPUBLICAN RIVER, NE

Location. Dam is on main stem of Republican River about 235 miles above confluence of stream with Smoky Hill River. Site is in Harlan County, 1-1/2 miles south of Republican City and 13 miles west of Franklin, Nebraska.

Existing project. An earthfill dam about 107 feet above streambed with a total length of 11,827 feet, including a gate-controlled, concrete, gravity-type spillway section near the center of dam. Reservoir provides storage capacity of 850,000 acre-feet (500,000 for flood control and 350,000 for irrigation and sedimentation allowance). Initial cost of constructing the project was \$45,279,532. Total Federal cost of project, including \$1,017,623 for major rehabilitation work and \$1,832,394 supplemental recreation development (Code 710), is \$48,129,549. Construction of the project was initiated in August 1946. The project was placed in operation in December 1952. Major rehabilitation work was completed in FY 1968.

Local cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2001 was 8,316,203 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

Study of future operation. The study of Future Operation, which was placed on hold during the Bureau of Reclamation's (BOR) Republican River Environmental Impact Statement (EIS) process, will not be reactivated. The Division Engineer signed a Record of Decision on July 25, 2000 adopting the Republican River EIS for Harlan County Lake. We continue to maintain our coordination with BOR. We also continue to respond to requests from the Department of Justice (DOJ) on the Kansas and Nebraska lawsuit on the Republican River Compact.

8. HILLSDALE LAKE, BIG BULL CREEK, KS

Location. The project is located approximately 12 miles above the mouth of Big Bull Creek, a tributary of the Marais des Cygnes River and about 2½ miles west of Hillsdale, in Miami County, Kansas.

Existing project. An earthfill embankment about 11,600 feet long (including approximately 3,300 feet of dike section) about 75 feet above rising valley flood plain. The spillway is gravity type uncontrolled and the outlet works are controlled. The total reservoir storage capacity is 160,000 acre-feet (81,000 for flood control, 11,000 for sediment reserve, and 68,000 for multipurpose storage for water supply, water quality control, and recreation). Construction was initiated in December 1974, and the project was placed in operation in October 1981. Federal cost of construction was \$64,161,400.

Local cooperation. Section 2, Flood Control Act 1938, applies. Local interests must make reimbursement of \$21,145,338 for water supply storage in accordance with Water Supply Act of 1958. The Kansas Water Resources Board signed a contract in January 1974, approved by the Secretary of the Army in April 1974, for the entire 53,000 acre-feet of water supply storage. The Kansas Department of Wildlife and Parks has a 50-year lease on 12,880 acres for management of land and water areas for public park, recreational, and fish and wildlife purposes.

Operations during fiscal year. Visitation for FY 2001 was 2,998,896 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

9. KANOPOLIS LAKE, SMOKY HILL RIVER, KS

Location. The dam is on the Smoky Hill River about 184 river miles above the mouth of the stream, and about 11 miles northwest of Marquette, Kansas.

Existing project. An earthfill dam about 131 feet above streambed, having a total length of 15,360 feet, including 4,070 feet of dike section on the left abutment and 2,550 feet of dike section on right abutment. The reservoir provides storage capacity of 450,000 acre-feet, (400,000 for flood control and 50,000 for recreation and streamflow regulation). Outlet works and spillway are in right abutment. Initial cost of constructing the project was \$12,327,735. Total Federal cost of project, including \$249,492, supplemental recreational development (Code 710), was \$12,577,227. Construction was initiated in June 1940, and project was placed in operation in May 1948.

Local Cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2001 was 1,435,318 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

10. LITTLE BLUE RIVER LAKES, MO

Location. This project consists of two lakes in Jackson County, Missouri, located in Kansas City, Missouri, and suburban communities. The Blue Springs Lake site is on the East Fork of the Little Blue River about ½ mile south of U.S. Highway 40, and the Longview Lake site is on the main stem at approximately 109th Street.

Existing Project. The Blue Springs dam is an earthfill embankment about 2,500 feet long and rising about 78 feet above the streambed, with an uncontrolled service spillway and uncontrolled outlet conduit. The total reservoir storage capacity is 26,600 acre-feet (15,700 for flood control, 10,600 for multipurpose storage for water quality and recreation, and 300 for sedimentation).

The Longview dam is an earthfill embankment about 1,900 feet long and rising about 120 feet above the streambed, with

an uncontrolled service spillway and an uncontrolled outlet conduit. The total reservoir storage capacity is 46,900 acre-feet (24,300 for flood control and 20,600 for multipurpose storage for water quality and recreation, and 2,000 for sedimentation). Federal cost (1992) for both lakes through construction of the project was \$140,809,200. Construction was initiated in September 1977, and the project became operational in September 1988.

Local cooperation. Section 2 of the Flood Control Act of June 28, 1938 applies. Local interest must share in separable costs allocated to recreation in accordance with Federal Water Project Recreation Act of 1965. The Jackson County Legislature approved a recreation cost-sharing contract on July 5, 1974, which was approved by the Secretary of the Army on June 24, 1976. A supplemental agreement, signed by Jackson County officials on June 5, 1978, and approved by the Secretary of the Army January 10, 1979, revised the existing contract to include additional costs involved in raising the multipurpose pool elevation at the Blue Springs Lake. Reimbursement for recreation was \$15,047,000 of which \$450,000 was accomplished during construction by local interests.

Operations during fiscal year. Project is complete. Land acquisition is complete. Visitation for FY 2001 was 2,291,840 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

11. LONG BRANCH LAKE, LITTLE CHARITON RIVER, MO

Location. The Damsite is on the East Fork Little Chariton River in north central Missouri about 2 miles west of Macon in Macon County.

Existing project. An earthfill dam about 3,800 feet long and about 71 feet high with an uncontrolled outlet conduit and an uncontrolled service spillway in the right abutment. Total reservoir storage capacity is 65,000 acre-feet (29,000 for flood control, 4,000 for sediment reserve, and 32,000 for multipurpose storage for water supply, water quality control, fish and wildlife, and recreation). Estimated Federal cost (1997) is \$20,288,000, and estimated non-Federal cost is \$3,605,000. Construction was initiated in March 1973. The project was placed in useful operation for flood control on September 1, 1980.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Local interests must make reimbursement of \$5,567,000 for water supply storage in accordance with Water Supply Act of 1958 and share in separable cost of \$3,589,000 allocated to recreation in accordance with Federal Water Project Recreation Act of 1965. On September 15, 1972 the Secretary of the Army approved a contract signed by the City of Macon, Missouri, for water supply and recreation development. Missouri State agencies indicated their intent to sponsor future water supply and

signed a contract on June 17, 1977 to sponsor recreational development in lieu of the City of Macon. After review by the Office of the Secretary of the Army, the state signed the contract in December 1979, and it was approved by the Secretary of the Army on April 18, 1980. Supplemental Agreement No. 1 to this contract was approved December 28, 1993 to provide for additional recreational facilities. Additional facilities have been designed.

Operations during fiscal year. Visitation for FY 2001 was 1,580,952 visitor hours. Project is 100 percent complete on scheduled work. The remaining unscheduled work is construction of recreation facilities. Maintenance: Activities consisted of ordinary operation and maintenance.

12. MELVERN LAKE, MARAIS DES CYGNES (OSAGE) RIVER, KS

Location. Damsite is on Marais des Cygnes (Osage) River in Osage County, Kansas, about 4 miles west of Melvern, Kansas.

Existing project. An earthfill dam about 9,700 feet long and about 98 feet high with an uncontrolled chute-type spillway in the left abutment. Total reservoir storage capacity is 363,000 acre-feet (200,000 for flood control, 26,000 for sediment reserve, and 137,000 for multipurpose storage for water supply, water quality control, and recreation). Cost of constructing the completed project was \$37,436,530. Construction was initiated in July 1967, and the project was placed in operation in August 1972.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Project storage was reallocated in 1989 to include municipal and industrial water supply in accordance with provisions of the Water Supply Act of 1958. In accordance with the provisions of the Memorandum of Understanding between the State of Kansas and the Department of the Army dated 1985, payment in full of \$7,131,834 for 50,000 acre-feet of water supply storage was made in March 1995. Utilization of storage for water supply was initiated in September 1993 under an interim contract and continues under the current contract signed in January 1995.

Operations during fiscal year. Visitation for FY 2001 was 4,574,928 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

13. MILFORD LAKE, REPUBLICAN RIVER, KS

Location. The Damsite is on the Republican River near the village of Alida about 10 miles above confluence of Republican and Smoky Hill Rivers which form Kansas River; and about 4 miles northwest of Junction City, Kansas.

Existing project. An earthfill dam about 6,300 feet long and 126 feet high with an uncontrolled service-chute spillway in a saddle on right abutment. Total reservoir storage capacity is 1,160,000 acre-feet (700,000 for flood

control, 160,000 for sediment reserve and 300,000 of multipurpose storage for water supply, water quality control, and recreation). Water supply storage is included in the project at the request of the Governor of Kansas under provisions of the Federal Water Supply Act of 1958. Initial cost of constructing the completed project was \$48,268,843. Total Federal cost of project, including \$1,297,649 supplemental recreational development (Code 710), was \$49,566,492. Construction was initiated in July 1961. The project was placed in operation in June 1965.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must make reimbursement of \$12,162,134 for water supply storage in accordance with Water Supply Act of 1958. Utilization of storage for water supply was initiated in October 1984. Reimbursement was initiated, at the option of the State, in September 1976.

Operations during fiscal year. Visitation for FY 2001 was 5,116,211 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

14. MISSOURI RIVER LEVEE SYSTEM IA, NE, KS AND MO (RULO, NE, TO MOUTH)

Location. On both banks of the Missouri River from Sioux City, Iowa, about 760 miles to the mouth near St. Louis, Missouri. The portion of the project in Kansas City District extends from Rulo, Nebraska, 498 miles to mouth.

Existing project. A series of levee units and appurtenant works along both sides of Missouri River from Sioux City, Iowa, to the mouth, for protection of agricultural lands and small communities against floods. Estimated fully funded (2000) for the active portion of the project from Rulo, Nebraska, to mouth is \$148,496,000, including \$107,174,000 Federal and \$20,135,000 non-Federal contributions, and costs of \$21,187,000 for lands and damages are to be borne by local interests. Remaining portion of project consists of units on which planning and construction are being delayed pending restudy to assure that additional levee construction is economically justified. Current cost estimate for deferred, inactive, and deauthorized portion of project Rulo, Nebraska, to mouth is \$168,865,000 (1964, 1986, and 1987 price levels), of which \$153,233,000 is Federal cost for construction and \$15,632,000 for lands and damages to be borne by local interests. Construction of the project was initiated in June 1948.

Local cooperation. Section 3, Flood Control Act of 1936 applies. Fully complied with for all completed units and units under construction. Local sponsors provide all operation and maintenance.

Operations during fiscal year. Status of individual units of active portion at end of fiscal year is shown in Table 27-H on Missouri River Levee System. Unit L385 was approved for construction in FY 1994. The GRR was approved in

2001 and plans and specifications are being prepared on L-142. The Project Cooperation Agreement on Unit L385 was executed September 23, 1997 and construction will commence in the spring of 2002.

15. PERRY LAKE, DELAWARE RIVER

Location. The Damsite is on the Delaware River about 5 miles above the mouth in Jefferson County, and about 3 miles northwest of Perry, Kansas.

Existing project. An earthfill dam about 7,750 feet long constructed to an elevation about 95 feet above valley floor with gated-outlet works and an uncontrolled spillway in left abutment. Total reservoir storage capacity is 770,000 acre-feet (480,000 for flood control, including 140,000 for sediment reserve and 150,000 of multipurpose storage for water supply, water quality control, and recreation). Water supply storage is included in the project plan at the request of the State of Kansas under provisions of the Federal Water Supply Act of 1958. Initial cost of constructing the completed project was \$48,371,706. Total Federal cost of project, including \$724,212 supplemental recreational development (Code 710), is \$49,095,918. Construction was initiated in March 1964, and the project was placed in operation in January 1969.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Local interests must make reimbursement of \$8,551,805 for water supply storage in accordance with Water Supply Act of 1958. Utilization of storage for water supply was initiated in October 1991. Reimbursement was initiated at the option of the State in September 1978.

Operations during fiscal year. Visitation for FY 2001 was 4,512,156 visitor hours. Maintenance: Activities included ordinary operation and maintenance, and painting the service and emergency gates.

16. PICK-SLOAN MISSOURI BASIN PROGRAM (KANSAS CITY DIST.)

Location. Flood control improvements included in this project are on and along the Missouri River and several of its principle tributaries, in states comprising the Missouri River Basin.

Existing project. The Pick-Sloan Missouri Basin program for flood control and other purposes in Missouri River Basin provides for levees along Missouri River between Sioux City, Iowa, and the mouth, flood-protection works at certain municipalities, and reservoirs on main stem of Missouri River and on tributaries for control of flooding. (See Table 27-B for authorizing legislation and Table 27-I on Kansas City District projects included in Pick-Sloan Missouri Basin program.) See individual project reports.

17. POMME DE TERRE LAKE POMME DE TERRE RIVER, MO

Location. The dam is on the main stem Pomme de Terre River, about 44 miles above the mouth in Hickory County, Missouri. The lake extends upstream into Polk County, Missouri. The site is about 4 miles south of Hermitage, Missouri, and 20 miles north of Bolivar, Missouri.

Existing project. An earth and rockfill dam about 4,630 feet long constructed to about 155 feet above riverbed and a dike section on left abutment about 2,790 feet long, providing storage capacity of 650,000 acre-feet (407,000 for flood control and 243,000 for sedimentation and multipurpose). Initial cost of constructing the complete project was \$14,946,784. Total Federal cost of project, including \$329,140 area redevelopment and \$2,089,529 supplemental recreational development (Code 710), is \$17,365,453. Construction was initiated in January 1957, and the project was placed in useful operation in October 1961.

Operations during fiscal year. Visitation for FY 2001 was 14,845,531 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance; and procuring and placement of new shower building in Nemo Park.

18. POMONA LAKE, ONE HUNDRED TEN MILE CREEK, KS

Location. The dam is on One Hundred Ten Mile Creek, a tributary of Marais des Cygnes (Osage) River, 7 miles above mouth of stream in Osage County, Kansas, about 8 miles northwest of Pomona, Kansas, and 34 miles upstream from Ottawa, Kansas.

Existing project. An earthfill dam 7,750 feet long constructed to an average height of about 85 feet above streambed, with gated-outlet works and an ungated chute-type spillway near left abutment. Total reservoir storage capacity is 230,000 acre-feet (160,000 for flood control, 14,000 for sediment reserve, and 56,000 of multipurpose storage for water quality control, and recreation). Initial cost of constructing the completed project was \$13,272,108. Total Federal cost of project, including \$731,130 supplemental recreational development (Code 710), was \$14,003,238. Construction began in July 1959, and the project was placed in operation in October 1963.

Local cooperation. Section 2, Flood Control Act of 1938 applies. Pomona has water supply reimbursement under Water Supply Act of 1958 totaling \$862,923.

Operations during fiscal year. Visitation for FY 2001 was 3,456,012 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

19. RATHBUN LAKE, CHARITON RIVER, IA

Location. The Damsite is on the Chariton River about 7 miles north of Centerville and 1 mile north of Rathbun, Appanoose County, Iowa.

Existing project. An earthfill dam 10,600 feet long constructed to an elevation about 86 feet above valley floor, with gated-outlet works and an uncontrolled service chute with paved sill spillway about a mile upstream from left abutment. Total reservoir storage capacity is 552,000 acre-feet (339,000 for flood control, 24,000 for sediment reserve and 189,000 of multipurpose storage for navigation, water quality control, and recreation). Initial cost of constructing the project was \$27,033,210. Total Federal cost of project, including \$588,948 supplemental recreation development (Code 710), was \$27,622,158. Construction of the project was initiated in September 1964 and completed in November 1969. The operating plan for this project was revised to reduce flood control releases during critical times of the year to allow local farmers better access during planting and harvesting and to facilitate field drainage and drying out. The revised plan has resulted in more frequent high pool elevations than anticipated, which has inundated roads and recreation facilities. A shoreline erosion study was accomplished; and a supplement to the master plan was approved, which resulted in relocation of recreation facilities and bank stabilization work to compensate for the higher lake levels.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Visitation for FY 2001 was 4,558,136 visitor hours. Maintenance: Activities included ordinary operation and maintenance.

20. SMITHVILLE LAKE, LITTLE PLATTE RIVER, MO

Location. The Damsite is on the Little Platte River about 1 mile northeast of Smithville and about 5 miles north of Kansas City, in Clay and Clinton Counties, Missouri.

Existing project. Earthfill dam about 4,200 feet long and 95 feet high with an uncontrolled service spillway. A dike about 2,400 feet long crosses a saddle in the left abutment. Total reservoir storage capacity is 246,500 acre-feet (92,000 for flood control, 52,300 for sediment reserve, and 102,200 of multipurpose storage for water supply, water quality control, and recreation). Cost of constructing the project was \$87,685,314. Construction was initiated in November 1973, and the project was placed in operation in March 1982.

Local cooperation. Section 2, Flood Control Act of June 28, 1938 applies. Reimbursement of \$24,000,000 will be required for water supply storage in accordance with Water Supply Act of 1958, and reimbursement of \$7,500,000 will be required for recreation development in accordance with Federal Water Recreation Act of 1965. Additional non-Federal contribution for recreation amounts to \$737,000.

All contracts for local cooperation were approved by the Secretary of the Army on November 27, 1972.

Operations during fiscal year. Visitation for FY 2001 was 7,129,236 visitor hours. Maintenance: Activities consisted of ordinary operation and maintenance.

21. TURKEY CREEK BASIN, KS & MO

Location: The Turkey Creek Basin is a 23-square mile area within Kansas City, KS and suburbs in Johnson and Wyandotte Counties in Kansas.

Existing Project. The recommended project is estimated to cost \$42,875,000, with an estimated Federal cost of \$25,596,000 and an estimated non-Federal cost of \$17,279,000, including construction of channel modification and tributary flood water diversion.

Local Cooperation. Latest evidence of sponsor support for design and construction was execution of the Preconstruction Engineering and Design (PED) agreement on 29 March 1999.

Operations during fiscal year. Work continued on Preconstruction Engineering and Design.

22. TUTTLE CREEK LAKE, BIG BLUE RIVER, KS

Location. The dam is on the main stem of the Big Blue River, about 12 miles above the stream mouth in Riley and Pottawatomie Counties, Kansas. Site is about 5 miles north of Manhattan, Kansas.

Existing project. An earth and rock dam 7,500 feet long and 157 feet high. Total reservoir storage capacity is 2,346,000 acre-feet (1,933,000 for flood control, 228,000 for sediment reserve and 185,000 for multipurpose storage, for low-flow regulation, navigation, and recreation). Initial cost of constructing the completed project was \$80,051,031. Total Federal cost of project, including \$533,048 supplemental recreational development (ode 710), was \$80,584,079. Construction began in October 1952. Project was placed in Operation in July 1962.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operations during fiscal year. Visitation for FY 2001 was 2,821,676 visitor hours. Maintenance: Activities included ordinary operation and maintenance, and painting the service and emergency gates.

23. WILSON LAKE, SALINE RIVER, KS

Location. The dam is on the Saline River about 130 miles above its mouth, near the eastern edge of Russell County, Kansas, about 50 miles west of Salina, 10 miles north of Wilson, and 20 miles east of Russell, Kansas.

Existing project. An earthfill dam about 5,600 feet long and 160 feet high with a gated-outlet works, chute spillway, storage capacity is 776,000 acre-feet (511,000 for flood control, 40,000 for sediment reserve and 225,000 multipurpose storage for irrigation, navigation, and low-flow regulation). Initial cost of constructing the project was \$20,015,023. Total Federal cost of project, including \$448,344 supplemental recreational development (Code 710), was \$20,463,367. Construction began in April 1961, and the project was placed in operation in December 1964.

Local cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2001 was 2,281,392 visitor hours. Maintenance: Activity included ordinary operation and maintenance, and procuring and placement of new shower building.

24. SCHEDULING OF FLOOD CONTROL RESERVOIR OPERATIONS

Under sections 7 and 9, 1944 Flood Control Act, the Corps is responsible for detailed scheduling of operations concerning storage capacity reserved for or assigned to flood control in reservoirs constructed by Bureau of Reclamation as well as those constructed by the Corps. Fiscal Year costs were \$302,000.

25. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Flood Control Act of June 22, 1936, P.L. 738, and subsequent acts require local interests to furnish assurances that they will maintain and operate certain local protection projects after completion in accordance with regulations prescribed by the Secretary of the Army. District Engineers are responsible for administration of these regulations within boundaries of their respective district. (See Table 27-J on inspection of completed flood control projects.)

**Multiple Purpose Projects
Including Power**

27. HARRY S. TRUMAN DAM AND RESERVOIR, Osage River, MO

Location. The Damsite is on the main stem of the Osage River about 1.5 miles northwest of Warsaw, Benton County, Missouri. Reservoir extends into Bates, Henry, Hickory, St. Clair, and Vernon Counties, Missouri.

Existing project. An earthfill dam about 5,000 feet long constructed to an average height of about 96 feet above streambed, including a gate-controlled overfall spillway and a power installation consisting of six inclined pump-generating units with a combined generating capability of 160,000 kilowatts. Total reservoir storage capacity is

5,202,000 acre-feet (3,918,000 for flood control, 244,000 for sediment reserve, and 1,040,000 multipurpose storage for power, low-flow regulation, and recreation). The operating purposes of the project are flood control, hydroelectric power, water supply, recreation, and fish and wildlife. Public Law 91-267, approved May 26, 1970, authorized a change in project name from Kaysinger Bluff Dam and Reservoir, Osage River Basin, Missouri, to the Harry S. Truman Dam and Reservoir. Initial cost of constructing the completed project was \$550,909,000. Construction of relocated Missouri Highway M-13 was initiated September 1964 and completed May 1966. Construction of the dam and reservoir was initiated in October 1964. The project was operational for flood control in October 1979, and multipurpose pool was reached in November 1979. The first power unit was placed on line on December 22, 1979. Subsequent problems with the turbine bearings required remedial repair that was completed in FY 1999. Through September 2001, power generation totaled 5,596,540,000-kilowatt hours. Of the gross income from the sale of power by Southwestern Power Administration, \$131,861,684 was allocated to the Corps of Engineers for project power operating costs, interest, and investment recovery.

Local cooperation. Section 2, Flood Control Act of 1938 applies.

Operation during fiscal year. Visitation for FY 2001 was 11,481,823 visitor hours. Project is complete. During FY 2001, 150,317,000 kilowatt-hours of electrical power were generated. Maintenance activities consisted of ordinary operation and maintenance and replacement and maintenance of Visiting Center exhibits.

28. STOCKTON LAKE, SAC RIVER, MO

Location. The Damsite is on the Sac River about 49.5 miles above its confluence with the Osage River, and about 1 mile east of Stockton, Cedar County, Missouri. The lake extends into Dade and Polk Counties.

Existing project. A rock-shell dam with impervious core about 5,100 feet long constructed to an average height of about 128 feet, -----with a gated overfall spillway and a 45,200-kilowatt power installation. Total reservoir storage capacity is 1,674,000 acre-feet (774,000 for flood control, 25,000 for sediment reserve and 875,000 multipurpose storage for power and recreation). The authorized project purposes are flood control, hydroelectric power, water quality, water supply, recreation, and fish and wildlife. Initial cost of constructing the completed project was \$75,715,300. Cost of the project, including \$3,758,000 for downstream channel work and \$502,057 for supplemental recreational development (Code 710), was \$79,975,357. Construction was initiated in October 1963, and the project was placed in operation in December 1969. Power operation problems were encountered with the initial operation in

March 1973 because the downstream channel did not have the capacity which earlier observations and computations indicated. As a result, it has been necessary to restrict the power operation to about the 30,000-kilowatt level. Right-of-way for construction of a channel cutoff and bridge at Horseshoe Bend were acquired, and construction completed. Sloughing easements downstream to Caplinger Mills were acquired. Completion assured downstream channel capacity to Caplinger Mills of 8,000 c.f.s. for powerplant operation. Discharge in this range will accommodate power operations at a 39,500-kilowatt level. Through September 2001 power generation totaled 1,687,643,000 kilowatt-hours. Of the gross income from the sale of power by Southwestern Power Administration, \$36,272,181 was allocated to the Corps of Engineers for project operating costs, interest, and investment recovery.

Local cooperation. Section 2, Flood Control Act of 1938, applies.

Operations during fiscal year. Visitation for FY 2001 was 7,263,884 visitor hours. The project is complete and in operational status. During FY 2001, 8,383,000 kilowatt-hours of electrical power were generated. Maintenance: Activities consisted of ordinary operation and maintenance and replacement of the power plant roof.

Work Under Special Authorities

28. CONTINUING AUTHORITIES

Small Flood Control Projects Not Specifically Authorized by Congress (Sec. 205, 1948 Flood Control Act, Public Law 858, 80th Cong., June 30, 1948, as amended).

Each project selected must be complete in itself, economically and environmentally justified, and limited to a Federal cost of not more than \$7 million. The local sponsoring agency must agree to provide without cost to the Department of the Army, all lands, easements, and rights-of-way, including highway bridge, and utility relocations and alterations; hold and save the Department of the Army free from damages; maintain and operate the project after completion; assume all project costs in excess of the Federal cost limit; and prevent future encroachments on improved channels.

The non-Federal sponsors of Section 205 projects are required to pay 50 percent of all feasibility study costs over \$100,000. For structural flood control projects, the sponsor must pay in cash during the construction at least 5 percent of the construction cost. The sponsor's cash and other contributions must equal 35 percent of the total construction cost, but will not be required to exceed 50 percent.

There were no Section 205 projects under construction in Fiscal Year 2001.

See Table K for expenditures under Section 205 during 2001.

Emergency Streambank Protection (Section 14, 1946 Flood Control Act, Public Law 526, 79th Cong., July 24, 1946) as amended.

Each project selected must be complete in itself, engineering feasible, economically justifiable environmentally acceptable, and limited to a Federal statutory cost of not more than \$1,000,000. The local sponsoring entity must agree to provide without cost to the Department of the Army, all lands, easements, and rights-of-way, including highway, highway bridge, and utility relocations and alterations required for project construction; provide over the period of construction, an amount equal to not less than 35 percent or more than 50 percent of total project cost, at least 5 percent of which will be cash; operate, maintain, repair, replace, and rehabilitate the project upon completion; hold and save the Department of the Army free from damages arising from the construction, operation, and maintenance of the completed project; and assume all project costs in excess of the Federal statutory cost limit.

Construction was completed on one project in FY 2001 as follows:

Grand River, Route A Bridge, MO. Projects were completed and turned over to the sponsors.

See Table 27-K for Emergency Streambank Protection expenditures during FY 2001.

Project Modifications for Improvement of Environment (Section 1135, Water Resources Development Act of 1986, Public Law 662, 99th Cong., November 17, 1986).

Section 1135 authorizes review of the operation of completed water resources projects to determine need for modifications for the purpose of improving environmental quality.

No projects were completed in FY 2001.

See Table 27-K for Section 1135 studies status and expenditures for FY 2001.

Aquatic Ecosystem Restoration (Section 206, Water Resources Development Act of 1996, Public Law 303, 104th Cong., October 12, 1996).

Section 206 authorizes small aquatic ecosystem restoration projects to improve the quality of the environment if in the public interest and cost effective.

No projects were completed in FY 2001.

See Table 27-K for Section 206 Studies status and expenditures for FY 2001.

29. EMERGENCY RESPONSE ACTIVITIES

A. Disaster Preparedness Program.

(1) The Disaster Preparedness Program (DPP) involves planning, training, inspection, supplies and equipment, and personnel. Planning activities involve development of District response and recovery plans in support of natural disasters. Current plans include the Flood Fight Plan, Emergency Operations Center, Plan, Emergency Alerts and Dismissal Plan, Emergency Operations and Disaster Assistance, Oil and Hazardous Spills and Deployment Plan.

(2) Activities to support disaster preparedness this year included flood fight training and Planning and Response Team training. Primary team members of the District's Emergency Water Planning and Response Team participated in a training/exercise during the third quarter FY01.

(3) Disaster preparedness includes maintaining the necessary supplies and equipment to support disaster response. To support flood-fighting efforts, an inventory is maintained of over 1.4 million sandbags 40 pumps and sandbag filling machines. During FY01, safety upgrades to several Gator pumps was completed.

(4) Response operations included deploying four personnel (Marge DeBrot, Marge Whipple, George Hanley and Vira Dobbins) in support of the terrorist attack on WTC and Pentagon. In addition, the District continued to provide drought assistance to the Kickapoo Tribe of Kansas.

(5) The Kansas City District also participated in a Division-wide Missouri River flood exercise that was conducted in Portland during the third quarter FY01. Attendees also included the Missouri State Emergency Management Agency as well as the City of Kansas City.

B. Public Law 84-99. Rehabilitation of Flood Control Works. Approximately 50 inspections were completed on active non-Federal Levees in the PL-84-99 Program. Flooding during June 2001 caused damage to several non-Federal Levees. Rehabilitation was approved for four of these levees and repair work began in the first quarter of FY02.

C. Catastrophic Disaster Response Planning. New Madrid/Cascadia/COOP.

(1) NWK participated in a New Madrid Earthquake exercise held at FEMA Region VII. The New Madrid OPLAN was up-dated to incorporate the initiatives of Readiness 2000. The revised OPLAN will be published in the near future.

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(2) NWK completed Volume I and II, Part 9 of the Cascadia OPLAN. Part I of the OPLAN requires CENWK on order to deploy up to five (5) Core TDA EFO's anywhere in the states of Oregon or Washington. Part II of the OPLAN requires CENWK on order to assume response and recovery missions for CENWS until such time that they reconstitute and become Mission Capable.

(3) CENWK participated in an internal CENWD tabletop exercise this calendar year in Portland Oregon. The main purpose of the exercise was to test the OPLANS.

(4) CENWK started development of a Kansas City District Continuity of Operations (COOP) OPLAN. The OPLAN will focus on relocating the district office to another location and continue to provide command, control, and critical functions of the district headquarters.

30. GENERAL INVESTIGATIONS

Fiscal year 2001 costs totaled \$1,985,480 for all General Investigations activities. See Table 27-L, which covers Surveys, Collection and Study of Basic Data and Preconstruction Engineering and Design expenditures in FY 2001.

Other Activities

31. MISSISSIPPI RIVER MAIN STEM

No activity within this appropriation this fiscal year.

31. CATASTROPHIC DISASTER PREPAREDNESS PROGRAM

FY 2001 expenditures of \$114,935 provided for activities required for local and national preparedness.

32. MISSOURI RIVER BASIN COLLABORATIVE WATER RESOURCES, PLANNING/ PARTNERING PROCESS

Missouri River Basin Association and the Corps will manage and facilitate the process of collaboration for some limited studies. The collaborative effort allows input from the states, tribes, and Federal agencies economic and environmental interest groups and the general public on both the operation issues, i.e. Master Manual, and non-operational issues. In addition, the collaborative process could address recreation industry development, ecosystem management, streambank erosion, project mitigation, structural changes for endangered species, environmental

monitoring tribal water rights, and support to navigation and agriculture. Fiscal Year costs were \$48,000.

33. REGULATORY PROGRAM

Statutes. The Corps of Engineers is charged with protecting the public interest in all waters of the United States, including wetlands. This is accomplished through a Department of the Army permit program pursuant to Section 10 of the Rivers and Harbors Act of 1899 and Section 404 of the Clean Water Act.

Operations during Fiscal Year 2001. The Kansas City District completed 2,427 permit actions during the year. A total of 88 violations were reported and evaluated - 87 were resolved by issuance of permits, voluntary restoration, administrative action or other means. Special projects and significant actions during the year included initiation of the biannual monitoring data collection for 17 permitted commercial dredging operations on the Kansas River; initiation of a public interest review to evaluate reissuance of 8 expiring commercial dredging permits on the Missouri River; completion of one merged NEPA/Section 404 project with the Federal Highway Administration/Missouri Department of Transportation and initiation of 5 new merged projects, and initiation of 1 new merged project with the Federal Highway Administration/Kansas Department of Transportation; initiation of a public interest review for renewal of an expiring General Permit to authorize repair of flood damage and construction of flood protection structures in Missouri, and initiation a public interest review for a new General Permit for watershed dams constructed by the Natural Resources Conservation Service; forwarding of 1 appeal to Division; initiation of an Environmental Impact Statement for the South Lawrence Trafficway in Kansas; participation in Native American pre-consultation meetings with Haskell Indian Nations University administration and its Board of Regents to address potential project-related impacts associated with the proposed South Lawrence Trafficway; completion of government-to-government consultation with the Osage Indian Tribe to address potential permit-related impacts to a culturally significant landscape; and continuation of the transition of workload from the District office to field offices under the "Full Service Field Office" concept. Fiscal Year costs totaled \$2,368,658.92 for all regulatory activities. See Table M for Permit Evaluation, Enforcement, Administrative Appeals and Environmental Impact Statement expenditures.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS FOR FY 2001

TABLE 27-A COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total cost to Sep 30, 2001
1.	Missouri River, Sioux City, IA to Mouth (Rulo, NE, to Mouth) (Federal Funds)	New Work: Approp. Cost Maint. Approp. Cost	-- -- 5,394,000 <u>1/</u> 5,499,400	-- -- 4,919,000 5,385,141	-- -- 5,460,000 5,460,505	-- -- 4,351,000 4,351,000	237,942,190 <u>1/</u> 237,942,190 <u>1/</u> 347,190,774 <u>2/</u> 347,190,774 <u>3/</u>
	Contributed Funds	New Work: Approp. Cost Maint. Approp. Cost	-- -- -- --	-- -- -- --	-- -- -- --	-- -- -- --	816,190 816,190 22,642 22,642
	Consolidated Summary	New Work: Approp. Cost Maint. Approp. Cost	-- -- 5,394,000 5,499,400	-- -- 4,919,000 5,385,141	-- -- 5,460,000 5,460,505	-- -- 4,351,000 4,351,000	238,758,380 <u>1/</u> 238,758,380 <u>1/</u> 347,213,416 <u>2/</u> 347,213,416 <u>3/</u>
2.	Missouri River Fish & Wildlife Mitigation, IA, NE, KS & MO	New Work: Approp. Cost	2,950,000 2,917,728	2,494,000 2,426,721	5,462,000 5,509,102	6,818,400 6,832,746	33,410,400 33,324,925
3.	Blue River Basin Kansas City, MO	New Work: Approp. Cost	558,000 537,624	323,000 340,417	294,000 298,719	243,000 226,421	1,737,000 1,720,069
4.	Blue River Channel Kansas City, MO (Federal Funds)	New Work: Approp. Cost	23,224,000 23,229,700	38,357,000 38,339,550	10,002,000 8,705,818	8,906,250 10,138,014	172,251,421 172,147,499
	Contributed Funds	New Work: Approp. Cost	-1,000,000 1,909,237	-- 523,944	-- 155,295	1,000,000 250,693	7,738,041 6,350,882 <u>5/</u>
	Consolidated Summary	New Work: Approp. Cost	22,224,000 25,138,937	38,357,000 38,863,494	10,002,000 8,861,113	9,906,250 10,388,707	179,989,462 178,498,381 <u>5/</u>
5.	Brush Creek, Kansas City, MO (Federal Funds)	New Work: Approp- Cost	-- 15,880	-- 3,684	-- 39	-- 11,000	14,390,000 14,384,158
	Contributed Funds	New Work: Approp. Cost	-116,233 --	-- --	-- --	-- --	1,225,767 1,225,767
	Authorized Project	New Work: Approp. Cost	-703,765 117,582	-- --	-- --	-- --	5,785,235 6,051,500 <u>6/</u>
	Expanded Project ⁶	New Work: Approp. Cost	-819,998 133,462	-- 3,684	-- 39	-- 11,000	21,401,002 21,661,425 <u>6/</u>
	Consolidated Summary	New Work: Approp. Cost	1,498,000 1,493,154	2,464,000 2,469,000	1,517,000 1,517,000	1,700,000 1,700,000	29,852,000 29,852,000
6.	Clinton Lake, Wakarusa River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,498,000 1,493,154	-- -- 2,464,000 2,469,000	-- -- 1,517,000 1,517,000	-- -- 1,700,000 1,700,000	57,415,433 57,415,433 <u>7/</u> 29,852,000 29,852,000

KANSAS CITY, MO, DISTRICT

TABLE 27-A (continued)

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total cost to Sep 30, 2001
7.	Harlan County Lake, Republican River, NE	New Work: Approp. Cost Maint. Approp. Cost Rehab. Approp. Cost	-- -- 1,502,000 1,528,992 -- --	-- -- 1,860,000 1,867,001 -- --	-- -- 2,309,000 2,309,000 -- --	-- -- 2,075,000 2,031,000 -- --	47,111,926 47,111,926 <u>8/</u> 40,328,984 40,284,984 1,017,623 1,017,623
8.	Hillsdale Lake, Big Bull Creek, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 773,000 773,114	-- -- 887,000 887,000	-- -- 905,000 905,000	-- -- 759,000 752,500	64,161,400 64,161,400 14,917,870 14,911,370
9.	Kanopolis Lake, Smoky Hill River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,266,000 1,292,359	-- -- 1,280,000 1,282,500	-- -- 1,255,000 1,255,000	-- -- 1,597,000 1,597,000	12,577,227 12,577,227 <u>9/</u> 37,250,312 37,250,312
10.	Little Blue River Lakes, Little Blue River, MO	New Work: Approp. Cost Maint. Approp. Cost	-- -- 787,000 789,435	-- -- 771,000 771,000	-- -- 936,000 936,000	-- -- 748,065 748,065	140,809,200 140,809,200 <u>10/</u> 11,445,849 11,445,849
11.	Long Branch Lake Little Chariton River, MO	New Work: Approp. Cost Maint. Approp. Cost	-- -- 834,000 877,245	-- -- 835,000 835,000	-- -- 814,000 814,000	-- -- 843,000 843,000	18,216,177 18,216,177 13,641,112 13,641,112
	Contributed Funds	New Work: Approp. Cost	-- --	-- --	-- --	-- --	1,139,455 1,139,332 <u>11/</u>
	Consolidated Summary	New Work: Approp. Cost	-- --	-- --	-- --	-- --	19,355,632 19,355,509
12.	Melvern Lake Osage (Marais des Cygnes) River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,611,000 1,631,492	-- -- 1,846,000 1,846,000	-- -- 1,957,000 1,957,000	-- -- 1,950,000 1,950,000	37,436,530 37,436,530 35,373,154 35,373,154
13.	Milford Lake, Republican River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,622,000 <u>3/</u> 1,812,038 <u>4/</u>	-- -- 1,818,000 1,818,000	-- -- 1,896,000 1,896,000	-- -- 2,089,000 2,039,000	49,566,492 49,566,492 45,904,940 45,854,940

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS FOR FY 2001

TABLE 27-A (continued)

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total cost to Sep 30, 2001
14.	Missouri River Levee System IA, NE, KS and MO (Federal Funds) Contributed Funds	New Work: Approp. Cost	907,000 859,101	1,375,000 1,451,985	2,926,000 2,900,539	2,140,600 2,156,871	72,727,451 72,682,245
		New Work: Approp. Cost	-- --	-- --	-- --	53,500 655	53,500 655 <u>12/</u>
	Consolidated Summary	New Work: Approp. Cost	907,000 859,101	1,375,000 1,451,985	2,926,000 2,900,539	2,194,100 2,157,526	72,780,951 72,682,900 <u>12/</u>
15.	Perry Lake, Delaware River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,768,000 1,771,291	-- -- 1,902,000 1,902,000	-- -- 1,984,000 1,984,000	-- -- 2,307,000 2,282,000	49,095,918 49,095,918 44,010,343 43,985,343
17.	Pomme de Terre Lake, Pomme de Terre River, MO	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,721,000 1,736,822	-- -- 1,824,000 1,824,000	-- -- 1,948,282 1,948,282	-- -- 2,155,000 2,155,000	17,365,452 17,365,452 41,909,743 41,909,743
18.	Pomona Lake, One Hundred Ten Mile Creek, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,564,000 1,572,043	-- -- 1,786,000 1,786,000	-- -- 1,667,064 1,667,064	-- -- 2,251,000 2,091,000	14,003,238 14,003,238 37,990,134 37,830,134
19.	Rathbun Lake, Chariton River, IA	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,928,000 1,918,090	-- -- 2,162,000 2,179,433	-- -- 2,045,000 2,045,000	-- -- 2,361,000 2,361,000	27,622,159 27,622,159 48,280,211 48,280,211
20.	Smithville Lake, Little Platte River, MO	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,012,000 989,947	-- -- 1,071,000 1,102,637	-- -- 944,000 944,000	-- -- 1,082,000 1,082,000	87,685,314 87,685,314 20,197,848 20,197,848
21.	Tuttle Creek Lake Big Blue River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,956,000 2,094,153 <u>4/</u>	-- -- 1,938,000 1,938,000	-- -- 2,283,000 2,282,000	-- -- 3,111,000 2,904,000	80,584,079 80,584,079 48,908,232 48,700,232
22.	Wilson Lake, Saline River, KS	New Work: Approp. Cost Maint. Approp. Cost	-- -- 1,301,000 1,346,829	-- -- 1,698,000 1,698,000	-- -- 1,551,000 1,551,000	-- -- 1,834,000 1,834,000	20,463,367 20,463,367 34,497,604 34,497,604

KANSAS CITY, MO, DISTRICT

TABLE 27-A (continued)

COST AND FINANCIAL STATEMENT

See Section in Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total cost to Sep 30, 2001
23.	Scheduling Flood Control Reservoir Operations	Maint. Approp. Cost	323,000 323,000	301,000 301,000	293,000 293,000	302,000 302,000	57,823,452 57,823,452
24.	Inspection of Completed Flood Control Projects	Maint. Approp. Cost	583,000 586,365	426,000 426,000	401,500 401,500	423,000 423,000	10,425,931 10,425,931
25.	Harry S. Truman Dam & Reservoir Osage River, MO	New Work: Approp. Cost Maint. Approp. Cost	-- -- 8,954,000 9,162,409	-- -- 6,948,000 6,991,712	-- -- 7,063,583 7,063,583	-- -- 7,626,059 7,621,059	550,909,000 550,908,965 138,987,804 138,982,804
26.	Stockton Lake, Sac River, MO	New Work: Approp. Cost Maint. Approp. Cost	-- -- 3,042,000 3,516,862	-- -- 4,096,000 4,144,023	-- -- 3,200,810 3,200,810	-- -- 3,674,000 3,674,000	79,975,357 79,975,357 69,541,969 69,541,969
30.	Mississippi River Main Stem Model Development	Maint. Approp. Cost	-- 341	-- --	-- --	-- --	90,000 90,000
31.	National Emergency Preparedness Program	Maint. Approp. Cost	104,000 104,435	90,000 85,000	92,600 97,600	114,935 114,935	4,035,885 4,035,885
32.	Missouri River Basin Collaborative Effort	New Work: Approp. Cost	100,000 99,602	75,000 75,681	13,500 13,500	48,000 48,000	465,500 465,500

1. Includes \$8,665,595 cost of new work for previous project.

2. Includes \$738,109 for maintenance of previous project.

3. Includes funds appropriated under FY 1993 Emergency Flood Supplemental Appropriation, 96 3/7 3123: Missouri River, Rulo NE to Mouth, \$40,000; and Milford Lake, KS, \$40,000

4. Includes funds expended under FY 1993 Emergency Flood Supplemental Appropriation, 96 3/7 3123: Missouri River, Rulo, NE to Mouth, \$1,119,854; Milford Lake, KS, \$45,526; and Tuttle Creek Lake, KS, \$53,087.

5. Exclude \$35,296 non-Federal contribution not required for authorized Blue River Channel project (Blue River Channel Mobay Chemical (1984-1987)

6. Corps built Brush Creek Expanded Project requested by sponsor, City of Kansas City, MO, with all costs of betterments and enhancements not required by authorized project funded by sponsor. Excludes sponsor's contributions of \$2,548,121 for Kansas City, MO, PED (FWKCM) 1987 through 1997; Park Features \$2,159,888 for Park Design; \$1,071,274 for Water Pollution Control during construction and \$1,729,155 for Public works Department.

7. Excludes \$118,805 non-Federal contribution not required for authorized Clinton Lake project (1973-1979).

8. Excludes cost of materials furnished Harlan County project without charge in the amount of \$24,198.

9. Excludes cost of materials furnished Kanopolis Lake project without charge in the amount of \$7,885.

10. Excludes \$2,732,554 thru FY 1990 non-Federal contributions not required for authorized Little Blue Lakes project.

11. Corrected total. Excludes \$42,149 interest during construction at Long Branch Lake project, and \$500,000 work-in-kind.

12. Corps is relocating utilities requested by sponsor, City of Riverside, MO, that is required for the authorized project.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 27-B

AUTHORIZING LEGISLATION

See Section In Text	Date of Act	Project and Work Authorized	Documents
1.		MISSOURI RIVER, SIOUX CITY, IA, TO MOUTH (RULO, NE, TO MOUTH)	
	Jul 25, 1912	Project adopted for securing a permanent navigable channel of 6-foot depth from Kansas City, MO to mouth.	H. Doc. 1287, 61st Cong., (contains latest published map). P.L. 241-62
	Aug 8, 1917	Fixed upstream limit of improvement at upper end of Quindaro Bend (274.8 miles from mouth) and provided for dredging.	H. Doc. 463, 64th Cong., (contains latest published map).
	Mar 3, 1925	For a minimum width of 200 feet and depth of 6 feet, with a reasonable additional width around bends, mouth to upper end of Quindaro Bend, Kansas City, MO.	P.L. 585-68
	Jan 12, 1927	Appropriation of \$12 million authorized for securing a 6-foot channel depth between Kansas City, MO, Quindaro Bend, and Sioux City, IA.	H. Doc. 1120, 60th Cong., P.L. 560-70
	Jul 3, 1930	Appropriation of \$15 million additional authorized; Additional allotments totaling \$29,153,108 were made by Public Works Administration under provisions of National Industrial Recovery Act of 1933, and \$9,669,791 allotted under provisions of Emergency Relief Appropriation Act of 1935.	P.L. 67-73 H.R. 11781 P.L. 520-71
	Aug 30, 1935	Completion of improvement from mouth to Sioux City, IA.	H. Doc. 238, 73d Cong., (contains latest published map). P.L. 409-73
	Mar 2, 1945	Securing a navigable channel of 9-foot depth and a minimum width of 300 feet.	H. Doc. 214, 76th Cong., (contains latest published map). P.L. 14-79
2.		MISSOURI RIVER FISH AND WILDLIFE MITIGATION, MO, KS, IA & NE	
	Nov 17, 1986	Project for mitigation of fish and wildlife losses Missouri River Bank Stabilization and Navigation Project, MO, KS, IA & NE: April 24, 1984, Report of Chief of Engineers, authorized at estimated cost of \$51,900,000.	Title VI, Section 601(a), Water Resources Development Act of 1986, P.L. 99-662.
	Aug 17, 1999	The above act is modified to increase by 118,650 acres the amount of land and interest in land to be acquired for the project.	Title III, Section 334, Water Resources Development Act of 1999, P.L. 106-53
3.		BLUE RIVER BASIN, KANSAS CITY, MO	
	Oct 12, 1996	Project for flood control along the left bank of the Blue River from U.S. Highway 71 upstream for a distance of about 1 1/4 miles in Jackson County, MO, to the Bannister Federal Complex levee: Report of the Chief of Engineers, dated Sep 5, 1996, at a total cost of \$17,082,000, with an estimated Federal cost of \$12,043,000 and an estimated non-Federal cost of \$5,039,000.	Title I, Section 101(a), Water Resources Development Act of 1996, P.L. 104-303

KANSAS CITY, MO DISTRICT

TABLE 27-B (continued)

AUTHORIZING LEGISLATION

See Section In Text	Date of Act	Project and Work Authorized	Documents
4.	Dec 31, 1970	BLUE RIVER CHANNEL, KANSAS CITY, MO Adopted plan for Blue River Basin and authorized \$40,000,000 for initiation and partial accomplishment.	H. Doc. 91-332, 91st Cong.
5.	Nov 17, 1986	BRUSH CREEK, KANSAS CITY, MO Project for flood control on Brush Creek, a tributary of the Blue River, Kansas City, MO, authorized at estimated total cost of \$16,100,000.	Sec. 401(a), Water Resources Development Act of 1986, P.L. 99-662
	Nov 28, 1990	Modified to authorize the Secretary of the Army to Construct the project substantially in accordance with the Post Authorization Change Report, dated April 1989 (revised January 1990), at a total cost of \$26,200,000.	Water Resources Development Act of 1990, P.L. 101-640.
6.	Oct 23, 1962	CLINTON LAKE, WAKARUSA RIVER, KS The project for the Kansas River, KS, NE and CO is authorized at an estimated cost of \$88,070,000.	1962 Flood Control Act, H. Doc 578, 87th Cong. P.L. 87-874.
7.	Jun 28, 1938	HARLAN COUNTY LAKE, REPUBLICAN, NE Adopted general comprehensive plan for Missouri River Basin and authorized \$9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized \$7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized \$200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
8.	Sep 3, 1954	HILLSDALE LAKE, BIG BULL CREEK, KS The comprehensive plan for the Missouri River Basin, Approved by the Act of June 28, 1938, and as amended and supplemented is further modified to include the project for flood protection on the Kansas River and tributaries. It is further modified to include the project for flood protection on the Osage River and tributaries.	P.L. 780, 83rd Cong., H. Doc. 549, 81st Cong.
9.	June 28, 1938	KANOPOLIS LAKE, SMOKY HILL RIVER, KS Adopted general comprehensive plan for Missouri River Basin and authorized \$9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 7th Cong., P.L. 761.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 27-B (continued)

AUTHORIZING LEGISLATION

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized \$7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized \$200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
10.		LITTLE BLUE RIVER LAKES, MO	
	Aug 13, 1968	Additional \$38 million for prosecution of general comprehensive plan for Missouri River Basin	P.L. 90-483, H. Doc. 169, 90th Cong.
11.		LONG BRANCH LAKE, LITTLE CHARITON RIVER, MO	
	Oct 27, 1965	The project for flood protection on the Chariton and Little Chariton Rivers and tributaries, IA and MO, is authorized at an estimated cost of \$9,167,000.	1965 Flood Control Act P.L. 89-298, H. Doc. 238, 89th Cong
12.		MELVERN LAKE, MARAIS DES CYGNES (OSAGE) RIVER, KS	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 for additional expenditure.	H. Docs. 642, 549 <u>1</u> / and 561, 81st Cong.; 83rd Cong., P.L. 780
13.		MILFORD LAKE, REPUBLICAN RIVER, KS	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 for additional expenditure.	H. Doc. 549 <u>1</u> /, 81st Cong.; P.L. 780
14.		MISSOURI RIVER LEVEE SYSTEM, IA, NE, KS AND MO	
	Aug 18, 1941	Levees along both sides of river from Sioux City to Kansas City.	H. Doc 821, 76th Cong. P.L. 77-228
	Dec 22, 1944	Extended project from Kansas City to the mouth and Provided for increased protection.	H. Doc 475 and S. Docs. 191 and 247, 78th Cong.
15.		PERRY LAKE, DELAWARE RIVER, KS	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 additional expenditure.	H. Docs. 642, 549 <u>1</u> /, and 561, 81st Cong.; 83rd Cong., P.L. 780
16.		PICK-SLOAN MISSOURI BASIN PROGRAM (KANSAS CITY DISTRICT)	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized \$9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong.

KANSAS CITY, MO DISTRICT

TABLE 27-B (continued)

AUTHORIZING LEGISLATION

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized \$7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River and authorized \$200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong.
	Jul 24, 1946	Additional expenditure of \$150 million for prosecution of General comprehensive plan for Missouri River Basin.	
	May 17, 1950	Additional expenditure of \$250 million for prosecution of General comprehensive plan for Missouri River Basin.	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 for additional expenditure.	H. Docs. 642 and 549 1/ 81st Cong.; 83rd Cong., P.L. 780
	May 2, 1956	Modified general comprehensive plan for Missouri River River Basin by deletion of construction of Red Willow Dam and Reservoir, NE, and addition of construction of Wilson Dam and Reservoir, KS.	
	Jul 3, 1958	Expanded general comprehensive plan for Missouri River Basin and authorized \$200 million additional expenditure.	H. Doc. 409, 84th Cong.
	Jul 14, 1960	Additional expenditure of \$207 million for prosecution of General comprehensive plan for Missouri River Basin.	
	Dec 30, 1963	Additional expenditure of \$80 million for prosecution of General comprehensive plan for Missouri River Basin and modified plan to include bank protection or rectification works below Garrison Dam.	
	Jun 18, 1965	Additional \$116 million for prosecution of general comprehensive plan for Missouri River Basin.	
	May 12, 1967	Additional \$20 million for prosecution of general comprehensive plan for Missouri River Basin.	
	Aug 13, 1968	Additional \$38 million for prosecution of general comprehensive plan for Missouri River Basin.	
	Dec 24, 1970	Change comprehensive plan name to Pick-Sloan Missouri River Basin Program.	S. Doc. 91-1100, 91st Cong.
	Dec 23, 1971	Additional \$101,000,000 for prosecution of general comprehensive plan for Pick-Sloan Missouri River Basin Program.	S. Doc. 92-222, 92nd Cong.
	Mar 7, 1974	Additional \$72,000,000 for prosecution of general comprehensive plan for Pick-Sloan Missouri River Basin Program.	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 27-B (continued)

AUTHORIZING LEGISLATION

See Section In Text	Date of Act	Project and Work Authorized	Documents
17.		POMME DE TERRE LAKE, POMME DE TERRE RIVER, MO	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized \$9 million for initiation and partial Accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized \$200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 and 247, 78th Cong., P.L. 534.
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 additional expenditure.	H. Doc. 642, 549 <u>1</u> /, and 561, 81st Cong.; 83rd Cong., P.L. 780.
18.		POMONA LAKE, ONE HUNDRED TEN MILE CREEK, KS	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 additional expenditure.	H. Doc. 549 <u>1</u> /, 561, 81st Cong.; 83rd Cong., P.L. 780
19.		RATHBUN LAKE, CHARITON RIVER, IA	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 additional expenditure.	H. Doc. 561, 81st Cong., 83rd Cong., P.L. 780
20.		SMITHVILLE LAKE, LITTLE PLATTE RIVER, MO	
	Oct 27, 1965	The project for flood protection on the Platte River and tributaries, MO and IA, is authorized at an estimated cost of \$26,889,000.	1965 Flood Control Act, P.L. 89-298 (H. Doc. 262, 89th Cong.)
21.		TURKEY CREEK BASIN, KS & MO	
	Aug 17, 1999	Project for flood control at the lower reaches of Turkey Creek Basin in Kansas City, KS and Kansas City, MO. Report of the Chief of Engineers dated April 21, 1999, at a total cost of \$42,875,000, with an estimated Federal cost of \$25,596,000 and an estimated non-Federal cost of \$17,279,000.	Title I Section 101(a) Water Resources Development Act of 1999, P.L. 106-53
22.		TUTTLE CREEK LAKE, BIG BLUE RIVER, KS	
	Jun 28, 1938	Adopted general comprehensive plan for Missouri River Basin and authorized \$9 million for initiation and partial accomplishment.	Flood Control Committee Doc. 1, 75th Cong., P.L. 761.
	Aug 18, 1941	Modified general comprehensive plan to include Harlan County Dam and Reservoir on Republican River, NE, other supplemental flood control works on upper Republican River, and authorized \$7 million additional expenditure.	H. Doc. 842, 76th Cong.; P.L. 77-228

KANSAS CITY, MO DISTRICT

TABLE 27-B (continued)

AUTHORIZING LEGISLATION

See Section In Text	Date of Act	Project and Work Authorized	Documents
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized \$200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 & 247, 78th Cong., P.L. 645
23.		WILSON LAKE, SALINE RIVER, KS	
	Dec 22, 1944	Expanded general comprehensive plan for Missouri River Basin and authorized \$200 million additional expenditure.	H. Doc. 475 and S. Docs. 191 & 247, 78th Cong., P.L. 534
	Jul 14, 1960 <u>2/</u>	Additional expenditure of \$207 million for prosecution of general comprehensive plan for Missouri River Basin	S. Doc. 96, 86th Cong., P.L. 645
24.		HARRY S. TRUMAN DAM AND RESERVOIR, OSAGE RIVER, MO	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 additional expenditure.	H. Doc. 549 <u>1/</u> , 81st Cong.; 83rd Cong., P.L. 780
	Oct 23, 1962	The Kaysinger Bluff Reservoir is hereby modified in accordance with recommendations of the Chief of Engineers in H. Doc. 578, 87th Cong., at an estimated additional cost of \$43,245,000; provided, that nothing in this Act shall be construed as authorizing the acquisition of additional lands for the establishment of a national wildlife refuge at the reservoir.	1962 Flood Control Act, H. Doc. 578, 87 th Cong., P.L. 87-874
25.		STOCKTON LAKE, SAC RIVER, MO	
	Sep 3, 1954	Expanded general comprehensive plan for Missouri River Basin and authorized \$217,710,000 additional expenditure.	H. Doc. 549 <u>1/</u> , 81st Cong.; 83rd Cong., P.L. 780

1/ Contains latest published maps of Missouri River

2/ Report of Chief of Engineers on justification of Wilson Dam and Reservoir, submitted in compliance with Public Law 505, 84th Congress, published as Senate Document 96, 86th Congress, was approved July 14, 1960 (Public Law 645).

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS FOR FY 2001

TABLE 27-C OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	<u>Cost to September 2001</u>	
			Construction	Operation and Maintenance
Fort Leavenworth Bridge removal	Complete	1965	270,393	--
Gasconade River, MO <u>1/2/</u>	Complete	1931	139,003	85,077

1/ Improvement, adequate for existing needs. Project for maintenance only. Curtailment of project in H. Doc. 467, 69th Cong.

2/ Inactive portion of project deauthorized Jan 1, 1990 in accordance with Section 1001(b)(1) of Water Resources Development Act (WRDA) of 1986 (P.L. 99-662).

KANSAS CITY, MO, DISTRICT

TABLE 27-E

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Operation and Maintenance
Abilene, KS	Completed	1961	1,099,350	--
Atchison, KS	Completed	1973	4,099,590	--
Barnard, KS <u>1/</u>	Completed	--	127,860	--
Bartley, NE	Completed	1953	118,269	--
Bedford, East Fork, 102 River, IA <u>1/</u>	Completed	1974	652,414	--
Big Blue River, Seward, NE <u>1/</u>	Completed	--	126,887	--
Big Stranger Creek, KS <u>1/</u>	Completed	--	337,131	--
Blue River Basin, Overland Park, KS				
Indian Creek Channel Modification <u>1/</u>	Completed	1994	269,288 <u>2/</u>	--
Braymer Lake, Shoal Creek, MO <u>3/</u>	Inactive	1966	--	--
Brookfield Lake, Yellow Creek, MO <u>3/</u>	Inactive	1976	451,400	--
Chariton-Little Chariton Basin, MO (1965 Act) <u>4/</u>	Completed	1977	692,706 <u>4/</u>	--
Chariton River, MO (1944 Act)	Completed	1973	8,052,990	--
East Muddy Creek, MO <u>3/</u>	Inactive	1966	--	--
Elk Creek, Clyde, KS <u>1/</u>	Completed	1984	989,015	--
Fairbury, Little Blue River, NE	Completed	1973	726,966	--
Frankfort, Black Vermillion River, KS	Completed	1966	1,271,025	--
Gypsum, Gypsum Creek, KS <u>1/</u>	Completed	1984	2,782,793 <u>5/</u>	--
Harry S. Truman Dam and Reservoir, MO				
(Downstream Fish and Wildlife Mitigation)	Inactive	--	--	--
Indianola, NE	Completed	1950	67,275	--
Kansas City, Kansas River, KS (62 Mod)	Completed	1984	25,010,500 <u>6/</u>	--
Kansas Citys on MO and KS Rivers,				
MO and KS	Completed	1980	42,434,197 <u>7/</u>	--
Lawrence, Kansas River, KS	Completed	1985	8,773,488 <u>8/</u>	--
Little Blue River Channel Improvement,				
Little Blue River, MO	Completed	1989	25,530,083	--
Lower Grand River, MO <u>3/</u>	Inactive	1966	--	--
Manhattan, Kansas River, KS	Completed	1967	2,488,585	--
Mercer Lake, Weldon River, MO <u>3/</u>	Inactive	1976	432,245	--
Missouri River at New Haven, MO				
(Sec 212, 1950 Act)	Completed	--	139,883	--
Osawatomie, Pottawatomie Creek, KS	Completed	1973	2,036,624	--
Ottawa, Osage, (Marais des Cygnes) River, KS	Completed	1966	4,462,661	--
Pattonsburg Lake, Grand River, MO <u>3/9/</u>	Inactive	1976	--	--
Perry Lake Area (Road Improvements), KS	Completed	1982	5,315,168	--
Platte River, MO, Channel Improvement	Deferred	1973	222,193	--
Rathbun Lake Fish Hatchery	Completed	1975	700,000	--
Salina, Smoky Hill River, KS	Completed	1967	3,878,668	--
Seward, NE <u>1/</u>	Completed	--	126,887	--
Smithville Channel, Little Platte River, MO	Deferred	1973	6,896	--
Stonehouse Creek, Jefferson Co., KS <u>1/</u>	Completed	1972	246,995	--

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 27-E (continued)

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Operation and Maintenance
Topeka, Kansas River, KS	Completed	1974	21,174,593	--
Trenton Lake, Thompson River, MO <u>3/</u>	Inactive	1966	--	--
Trimble Wildlife Area, Smithville Lake, MO	Completed	1990	1,570,000	--
Upper Grand River, MO <u>3/</u>	Inactive	1966	--	--

1/ Authorized by the Chief of Engineers under Section 205, Public Law 858, 80th Congress, as amended.

2/ Required non-Federal contributions \$129,680.

3/ Grand River Basin reconnaissance study (authorized by resolution of the Committee on Public Works and Transportation, U.S. House of Representatives on July 3, 1987) reviewed and updated costs for these projects authorized in the Flood Control Act of 1965, and found no economically feasible plan.

4/ Inactive units Little Chariton River (East and Middle Fork) and Mussell Fork were deauthorized Jan 1, 1990 by Section 1001(b)(1) of the Water Resources Development Act of 1986, P.L. 99-662. Construction cost includes \$481,106 cost of completed Shoal Creek Unit and \$211,600 cost of deauthorized Little Chariton River and Mussell Fork units.

5/ Includes \$130,841 non-Federal contributions.

6/ Inactive units Kansas Avenue Bridge and Approach, and Lower Argentine Units were deauthorized Jult 9, 1995 in accordance with Section 1001(b)(2) of WRDA of 1986, P.L. 99-662. Construction cost above includes \$67,500 for deauthorized Bridge and Approach Unit; does not include \$1,181,000 non-Federal Contributions.

7/ Includes \$619,787 non-Federal contributions for work desired by local interests, but not required under the project. The project as a whole is complete except for Turkey Creek facilities in Central Industrial District Unit.

8/ Includes \$153,377 non-Federal contributions.

9/ Patonsburg Lake Highway Relocation and town relocation portions of the project were deauthorized Jan 1, 1990 in accordance with Section 1001 (b)(1) of the Water Resources Development Act of 1986, P.L. 99-662.

KANSAS CITY, MO, DISTRICT

TABLE 27-G

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Arlington Lake, MO	1948	Flood Control Act approved June 28, 1938, as modified by Flood Control Act approved August 18, 1941, and expanded by Flood Control Act approved December 22, 1944	\$8,651	--	Aug 5, 1977
Beatrice, Big Blue River, NE	1965	Flood Control Act approved September 3, 1954	16,317	--	May 6, 1981
Chariton-Little Chariton Basin, MO (1965 Act)--Inactive Units Little Chariton River (East and Middle Fork) and Mussell Fork Units only <u>1/</u>	1977	1965 Flood Control Act P.L. 89-298 (H. Doc. 238, 89 th Cong., 1st sess.)	211,600	--	Jan 1, 1990
Dry Fork and East Fork Lakes, Fishing River, MO	1974	1965 Flood Control Act P.L. 89-298 (H. Doc. 281, 89 th Cong., 1st sess.)	51,989	--	Jan 1, 1990
Fort Scott Lake	1976	1954 Flood Control Act (H. Doc. 549, 81st Cong. 2nd Sess)	757,500	--	Apr 5, 1999
Garnett Lake, Pottawatomie Creek, KS	1973	Flood Control Act approved September 3, 1954	71,466	--	Nov 17, 1986
Gasconade River Navigation, MO	1931	Curtailment of project in H. Doc. 467, 69th Cong. 1928	<u>2/</u>	--	Jan 1, 1990
Grove Lake, Soldier Creek, KS	1977	1962 Flood Control Act (S. Doc. 122, 87th Cong. 2d sess.)	1,754,019	--	Nov 17, 1986
Hackleman Corners Lake, Cedar Creek, MO	--	Authorized by Flood Control Act approved September 3, 1954	--	--	Aug 5, 1977
Hays, Big Creek, KS <u>3/</u>	1974	Flood Control Act of 1965 approved October 27, 1965	499,200	--	Jan 18, 1978
Indian Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332 91st Cong., 2d sess.)	127,297	--	Nov 17, 1986
Kansas City, Kansas River, KS (62) Mod)--Inactive Units Kansas Avenue Bridge Approach, and Lower Argentine Units Only	1984	1962 Flood Control Act, S. Doc. 122, 87th Cong., P.L. 87-874	67,500 <u>4/</u>	--	Jul 9, 1995
Kansas River Navigation	1980	1965 Flood Control Act, P.L. 89-298, Sec. 201	259,900	--	Nov 17, 1986
Lawrence, Kansas River, KS, South Lawrence Unit	1981	1954 Flood Control Act (H. Doc. 642, 81 st Cong., 2d sess.)	--	--	Apr 5, 1999
Marysville, KS	--	Flood Control Act of September 3, 1954	133,682	--	Jan 1967
Melvorn Lake and Pomona Lake (Road Improvements) KS (1974 Act)	--	Water Resources Development Act of 1974, Section 17	--	--	Jan 1, 1990

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 27-G (continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Merriam, Turkey Creek, KS	1970	Flood Control Act approved September 3, 1954	39,708	--	Nov 27, 1973
Mill Lake, Blue River, MO	1971	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	--	--	Nov 17, 1986
Missouri River Levee System, IA, KS, MO, and NE Deauthorized by Sec. 1002 Water Resources Development Act of 1968, P.L. 99-662, Section 1002: Units R402; R393-395; and R414	--	Flood Control Act of August 18, 1941, P.L. 228, 77th Cong.	57,500	--	Nov 17, 1986
Deauthorized in accordance with WRDA Section 1001(b)(1): Units L36; R42; L51; R55-59-61; L68-92; R70; L78; R87; L94; L99; L103; R104; R107; R112; L117; L121; L124; L129; L134; L137-139; L145; R150; L154; L157; R161; L164; R169; L175; R179-184; L191-196; L205; L217; R226; R240; R251; L256; R259; L263-270 <u>5</u> /; R272; R284; R302; R336; L353; L357; R361; L362; L392; L419-426; L435; R512-513, Section III	--	Flood Control Act of August 18, 1941, P.L. 228, 77th Cong.	1,631,700	--	Jan 1, 1990
Onaga Lake, Vermillion Creek, KS		Flood Control Act of 1962, October 23, 1962 (P.L. 87-874)	2,178,261	--	Nov 17, 1986
Osage River Navigation, MO, lock and dam	1952	Original lock and dam authorized Mar 3, 1899; improvement authorized in 1928; placed in standby status Jul 1952 and operation & maintenance discontinued.	658,076 <u>6</u> /	--	Jan 1, 1990
Pattonsburg Lake, Grand River, MO <u>7</u> /					
I-35 Highway Relocation	1976	1965 Flood Control Act, P.L. 89-298	393,623	--	Jan 1, 1990
Town Relocation	1976	(H. Doc. 241, 89th Cong., 1st sess)	91,929	--	Jan 1, 1990

KANSAS CITY, MO, DISTRICT

TABLE 27-G (continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date and Authority	Federal Funds Expended	Contributed Funds Expended	Date Deauthorized
Pioneer Lake, KS	1952	Flood Control Act approved June 28, 1938, as modified by Flood Control Act of August 18, 1941, and expanded by Flood Control Act approved December 22, 1944	95,692	--	Aug 5, 1977
Pomme de Terre Lake (Power Addition), MO	1954	Flood Control Act of 1954	--	--	Nov 17, 1986
Richland Lake, MO	1974 1948	(H. Doc. 549, 81st Cong., 2d sess.) Flood Control Act approved June 28, 1938, as modified by Flood Control Act approved August 18, 1941, and expanded by Flood Control Act approved December 2, 1944	8,548	--	Aug 5, 1977
Tomahawk Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	77,189	--	Nov 17, 1986
Tuttle Creek Lake, KS (Road Improvement--1974 Mod.)	1977	Sec. 18 of Water Resources Development Act of 1974	3,000	--	Nov 17, 1986
Tuttle Creek Lake, KS Road and Bridge (1976 Act)	--	Water Resources Development Act of 1976, Section 189, P.L. 94-587	--	--	Jan 1, 1990
Wolf-Coffee Lake, Blue River, KS	1976	1970 Flood Control Act (H. Doc. 332, 91st Cong., 2d sess.)	1,095,020	--	Nov 17, 1986

1/ For completed Shoal Creek unit of Chariton-Little Chariton Basin, MO, see Table 27-E.

2/ For completed project see Table 27-C. Deauthorized under Sec. 1001(b)(1) WRDA of 1986, P.L. 99-662.

3/ Hays, Lincoln Draw, KS, Section 205 feasibility study terminated in March 1991 due to lack of identifiable project that would meet dam safety concerns.

4/ For completed Argentine, Amourdale, and Central Industrial Units of project, see Table 27-E.

5/ Incorrectly shown as R263-270 in the deauthorization act.

6/ Operation and maintenance costs \$850,495. Deauthorized under Sec. 1001(b)(1) of WRDA, P.L. 99-662.

7/ Pattonsburg Lake portion of project is inactive. See Table 27-E.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

MISSOURI RIVER LEVEE SYSTEM

TABLE 27-H

(See Section 14 of Text)

Unit	Miles of Levee	Status
R512-513 Richardson Co. D.D. No. 7	19.1	Complete--1958
R500 Iowa Point D. D. No. 4	4.1	Complete--1954
Kimsey Holly Creek	4.4	Complete--1970
L497 Forest City L. D.	16.0	Complete--1962
L488 Holt Co. D. D. No. 7	11.5	Complete--1955
R482 Burr Oak D. D. No. 3	8.2	Complete--1954
L476 Amazonia L. D.	10.8	Complete--1956
R460-471 Elwood-Gladden L. D.	13.8	Complete--1968
L455 S. St. Joseph L. D.	15.6	Complete--1967
L443-448 Halls L. D.	17.3	Complete--1957
R440 Atchison & Doniphan Co. D. D.	10.7	Complete--1959
L408 Farley-Beverly D. D.	12.2	Complete (Levee raise modification)--1972
L400 Waldron L. D.	7.6	Complete--1957
L385 Riverside-Quindaro D. D.	6.5	Planning underway
R351 Atherton L. D.	15.9	Complete--1966
L330-345 Orrick L. D.	43.4	Inactive
L319-325 Henrietta-Crooked River D. D.	35.0	Inactive
L246 Brunswick-Dalton D. D.	20.0	Complete--1983
L142	6.0	Planning underway
Remaining units		Detailed planning not initiated

KANSAS CITY, MO, DISTRICT

KANSAS CITY DISTRICT PROJECTS INCLUDED IN
PICK-SLOAN MISSOURI BASIN PROGRAM

TABLE 27-I

(See Section 16 of Text)

Project	Status ^{1/}	Federal Cost ^{2/}	Non-Federal Cost ^{3/}	Non-Federal Reimbursable ^{4/}
Abilene, Smoky Hill River, KS	C	\$1,099,350	\$287,000	
Bartley, Republican River, NE	C	118,269	9,500	
Fort Scott Lake, Marmaton River, KS	D	71,186,000	19,314,000	\$44,800,000 ^{5/}
Garnett Lake, Pottawatomie Creek, KS	D	71,466	--	
Harlan County Lake, Republican River, NE	C	48,129,549	--	
Harry S. Truman Dam and Reservoir, Osage River, MO	C	550,908,965	--	138,385,000 ^{6/}
Hillsdale Lake, Big Bull Creek, KS	C	64,161,400	--	21,145,338 ^{5/}
Indianola, Republican River, NE	C	67,275	7,592	
Kanopolis Lake, Smoky Hill River, KS	C	12,577,227	--	
Lawrence, Kansas River, KS	C	8,620,111	2,130,000	
Manhattan, Kansas River, KS	C	2,488,585	265,000	
Melvorn Lake, Osage (Marais des Cygnes) River, KS	C	37,436,530	--	7,131,834 ^{7/}
Melvorn Lake and Pomona Lake (Road Improvement), KS (1974 Authorization)	D	--	--	
Milford Lake, Republican River, KS	C	49,566,492	--	12,162,134
Missouri River Levee System, Rulo to the Mouth ^{8/}	A	93,553,000	37,216,000	
Osawatomie, Osage (Marais des Cygnes) River, KS	C	2,036,624	348,300	
Ottawa, Osage (Marais des Cygnes) River, KS	C	4,462,661	876,000	
Perry Lake, Delaware River, KS	C	49,095,918	--	8,551,805 ^{5/}
Pomme de Terre Lake, Pomme de Terre River, MO	C	17,365,453	--	
Pomona Lake, Osage River Basin, KS	C	14,003,238	--	862,923 ^{5/}
Salina, Smoky Hill River, KS	C	3,878,668	1,960,000	
Stockton Lake, Sac River, MO	C	79,975,357	--	24,206,593 ^{9/}
Topeka, Kansas River, KS	C	21,174,593	10,383,492	
Tuttle Creek Lake, Big Blue River, KS	C	80,584,079	--	2,333,916 ^{5/}
Tuttle Creek Lake, KS--Road and Bridge (1976 Act)	D	--	--	
Tuttle Creek Lake (Road Improvement), KS (1974 Modification)	D	3,000	--	
Wilson Lake, Saline River, KS	C	20,463,367	--	

^{1/} Status: A = Active; C = Completed; D = Deauthorized; I = Inactive.

^{2/} Actual appropriations for completed and deauthorized projects; estimated appropriation requirements for active and inactive projects.

^{3/} Estimated cost during construction.

^{4/} Future reimbursement of initial Federal cost.

^{5/} Estimated reimbursement costs allocated to water supply.

^{6/} Estimated reimbursement costs allocated to power.

^{7/} In accordance with the Memorandum of Understanding between the State of Kansas and the Dept. of the Army dated 1985, payment in full of \$7,131,834 for 50,000 acre-feet of water supply was made in March 1995.

^{8/} Active portion of project. Currently estimated cost (2001): Deferred portion of project--\$46,753,000 Federal and \$4,336,000 non-Federal; Inactive portion of project--\$104,791,000 Federal and \$11,296,000 non-Federal. Actual cost of deauthorized units (1990) is \$1,689,200 Federal.

^{9/} Includes \$22,116,864 estimated reimbursement costs allocated to power, and \$2,089,729 estimated reimbursement costs allocated to water supply.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

**INSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS
(See Section 25 of Text)**

TABLE 27-J

Project	Month Inspected
<u>Missouri River Main Stem</u>	
R482, R500, R440 and Atchison, KS	Apr-2001
L497, L488, L476	Apr-2001
Kimsey Holley Creek, MO	Apr-2001
Birmingham, MO	Aug-2001
Fairfax Jersey Creek (KCK)	May-2001
North Kansas City, MO (Lower Section	May-2001
L408, L400, R471-460 and R351-I	May-2001
KCMO Units - CID (MO), East Bottoms, NKC Airport	Jun-2001
L448-443	Aug-2001
L455	Jun-2001
L246, Lower Chariton, MO and New Haven, MO	Aug-2001
R512-513	Oct-2000
<u>Kansas River</u>	
North Topeka, Soldier Creek	Apr-2001
South Topeka Units-Oakland, South Topeka, Auburndale and	
Waterworks Unit	Apr-2001
Manhattan, KS	May-2001
Ft Riley, KS	Jul-2001
Lawrence, KS	Sep-2001
Kaw Valley--Argentine, Armourdale, Lower Fairfax, CID (KS)	
Lower Fairfax (all KCK)	Oct-2001
<u>Osage River (MO) Marais des Cygnes (KS)</u>	
Ottawa, KS	Jun-2001
Osawatomie, KS	Jun-2001
<u>Smokey Hill, Saline, Solomon Rivers & Tributaries (KS)</u>	
Abilene, KS	Jul-2001
Saline, KS	Sep-2001
Barnard, KS	Sep-2000
Gypsum, KS	Oct-2000
<u>Republican River</u>	
Clyde, KS	Apr-2001
Indianola, NE	Oct-2000
<u>Big and Little Blue Rivers (KS & NE)</u>	
Frankfort, KS	Apr-2001
Fairbury, NE, Seward, NE	Sep-2001
<u>Blue River (MO)</u>	
GSA Complex (KCMO)	May-2001
Blue River Channel & Brush Creek (KCMO)	Jun-2001
<u>Little Blue River Channel, Jackson County, MO</u>	
R351-II	May-2001
Little Blue River Channel, Jackson, MO	Aug-2001
Lake City AAP, MO	Jul-2001

KANSAS CITY, MO DISTRICT

INSPECTION OF COMPLETED
FLOOD CONTROL PROJECTS
(See Section 25 of Text)

TABLE 27-J (continued)

Project	Month Inspected
<u>Miscellaneous</u>	
Bedford, IA	Apr-2001
Shoal Creek, MO	Aug-2001
Macon-Adair Project, Kirksville, MO	Aug-2001
Stonehouse Creek, KS	Jul-2001

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORK ACTIVITIES FOR FY 2001

TABLE 27-K **WORK UNDER SPECIAL AUTHORITIES**
(See Section 28 of Text)

Study	Status <u>1/</u>	Fiscal Year Cost
<p align="center">Flood Control Activities Pursuant to Section 205, 1948 Flood Control Act Public Law 858, 80th Congress, June 30, 1948, as Amended</p>		
Section 205 Coordination Account	--	\$17,320
Blacksnake Creek, St. Joseph—170801	F	41,134
Brush Creek, Plaza to State Line, KS—172425	F	4,399
St. Joseph, MO--160262	F	-1,684
Excelsior Springs, MO--160263	F	48,107
Brunswick, MO--160265	F	8,058
Wears Creek, MO--165565	F	<u>21,842</u>
TOTAL ALL SECTION 205 ACTIVITIES		<u>\$139,175</u>

Emergency Streambank Protection—Sec 14, 1946 Flood Control Act
Public Law 526, 79th Congress, July 24, 1946, as Amended

Section 14 Coordination Account	--	\$ 18,557
Blue River, KCMO, Kansas City, MO	D	9,933
Chariton River, MO	D	2,255
Delaware River Water Intake, Kickapoo Res, KS	C	9,122
Flat Creek, MO	D	13,576
Grand River, Route A Bridge, MO	C	329,139
Hinkson Creek, Columbia Sewer, Main, MO	O	-683
Kansas River, Eudora Bend Bridge, KS	D	37,774
Middle Fork, Grand US 169, MO	D	66,565
Petite Saline Creek, MO	D	11,729
Platte River Bridge, Conception, MO	D	2,652
South Fork Clear Creek, Route FF, Maryville	D	5,207
Thompson River, Trenton, MO	D	11,167
West Fork Medicine Creek, Galt Bridge	D	<u>11,659</u>
TOTAL ALL SECTION 14 ACTIVITIES		<u>\$528,654</u>

KANSAS CITY, MO, DISTRICT

TABLE 27-K (continued)

Study	Status ^{1/}	Fiscal Year Cost
Project Modifications for Improvement of Environment		
Section 1135, Water Resources Development Act of 1986,		
Public Law 662, 99th Congress, November 17, 1986		
Coordination Account Funds	--	\$ 18,839
Initial Appraisals	I	24,904
Kansas River Riverfront, Mo	D	173,047
Long Branch Lake State Park, MO	I	9,184
Milford Lake Habitat Restoration, KS	D	287,812
Rathbun Lake Habitat Restoration, IA	D	<u>21,100</u>
TOTAL ALL SECTION 1135 ACTIVITIES		<u>\$534,885</u>
Acquatic Ecosystem Restoration		
Section 206, Water Resources Development Act of 1996,		
Public Law 303, 104th Congress, October 12, 1996		
Coordination Account Funds	--	\$ 14,478
Preliminary Restoration Funds	I	15,862
Chariton River/Rathbun Lake Watershed	D	31,602
Lake Nemaha Wetlands, KS	D	40,487
Straightwater Marsh Wetland Habitat	D	15,658
Wanamaker Wetlands, KS	I	<u>9,184</u>
TOTAL SECTION 206 ACTIVITIES		<u>\$ 127,271</u>

^{1/} Status: I = Initial; D = Planning and Design Analysis; F = Feasibility; C = Construction; P = Plans and Specs
O = Operational

Emergency Response Activities
(See Section 29 of Text)
Emergency Flood Control Activities – Repair
Flood Fighting, and Rescue Work –
Public Law 99, 84th Congress
And Antecedent Legislation

<u>Activity</u>	<u>Approp 96X3125</u> <u>FY 01 Expenditures</u>
FLOOD CONTROL AND COASTAL EMERGENCIES	
Disaster Preparedness Program – 100	
Planning Activities	\$405,084
Training and Exercise	6,433
Facilities	43,554
National Centers for Expertise	<u>0</u>
Total Disaster Preparedness Program	<u>\$455,071</u>

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORK ACTIVITIES FOR FY 2001

TABLE 27-K (continued)

<u>Activity</u>	<u>Approp 96X3125 FY 01 Expenditures</u>
Emergency Operations--200	
Response Operations—210	50,172
Acquisition of Supplies & Equipment	83,747
Operational Deployment	<u>17,969</u>
Total Emergency Operations	<u>\$151,888</u>
Rehabilitation--300	
Federal Flood Control Works	\$217,820
Non-Federal Flood Control Works	60,001
Field Investigation	38,639
Inspections	141,315
Interagency Levee Activities	<u>0</u>
Total Rehabilitation	<u>\$457,774</u>
Emergency Water Supplies and Draught Assistance--400	
Field Investigations	<u>\$22,978</u>
Total	<u>\$22,978</u>
Hazard Mitigation--600	
Hazard Mitigation Team Activities	<u>0</u>
FLOOD CONTROL AND COASTAL EMERGENCIES	
TOTAL FEDERAL NON-REIMBURSEABLE ACTIVITIES	<u>\$1,087,711</u>
	Rivers and Harbors
	Contributed Funds
	Approp 96X8862
	<u>Expenditures</u>
SPONSOR'S CONTRIBUTED FUNDS	
Maintenance--300	<u>\$194,070</u>
TOTAL ALL EMERGENCY RESPONSE ACTIVITIES EXPENDITURES	<u>\$1,281,781</u>

KANSAS CITY, MO, DISTRICT

TABLE 27-L

ACTIVE GENERAL INVESTIGATIONS
(See Section 30 of Text)

Item and PWI No.	Federal Cost FY 01	Total by Category
SURVEYS (Category 100)		
Flood Damage Prevention Studies (120)		
Turkey Cr KS&MO Cost Sharing—012381	-	\$40,263
Swope Park Industrial Area, Kansas City, MO--012821		1,669
Kansas Citys, MO & KS--13268		515,844
Upper Turkey Creek, KS--014411		62,502
Subtotal		\$539,751
Comprehensive Studies (150)		
Missouri & Mississippi Rivers Enhancement--010642		\$236,409
Review of Authorized Projects (160)		
MRLS, Units L455 and R460-471—013267		\$72,423
Topeka, KS—013200		55,944
Subtotal		\$128,367
Miscellaneous Activities (170)		
Special Investigations--017250		\$171,671
Interagency Water Resources Development--014713		7,984
North American Waterfowl Mgmt--053904		2,599
Subtotal		\$182,254
Coordination with Other Agencies and Non-Federal Interests (180)		
Coop with Other Water Resources Agencies (181)--053907		\$10,260
Planning Assistance to States (186)		343,401
Subtotal		\$353,661
TOTAL SURVEYS (Category 100)		\$1,440,442
COLLECTION AND STUDY OF BASIC DATA (Category 200)		
Flood Plain Management Services (250)		
Flood Plain Management Service Unit--082030		\$35,056
Technical Services--082040		59,737
Quick Responses--082045		5,982
Flood Plains Management Study--082500		969
Special Studies		
City of Claycomo, MO--083738		15,616
Bluefield, VA--083650		46,182
Subtotal		\$163,542
Hydrologic Studies (260)		
General Hydrology Studies--053820		\$24,998

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 27-L (continued) ACTIVE GENERAL INVESTIGATIONS
(See Section 30 of Text)

Item and PWI No.	Federal Cost FY 01	Total by Category
TOTAL COLLECTION AND STUDY OF BASIC DATA (Category 200)		\$188,540
PRECONSTRUCTION ENGINEERING AND DESIGN		
Flood Control Projects (Project Not Fully Authorized)		
(Category 450)		
Swope Park Industrial KC, MO--012821	\$8,643	
Flood Control Projects (Fully Authorized Project)		
(Category 600)		
Turkey Creek KS & MO Cost Sharing	\$357,252	
Blue River Basin, Kansas City, MO--012563	-9,397	
TOTAL PRECONSTRUCTION ENGINEERING AND DESIGN		\$356,499
GRAND TOTAL GENERAL INVESTIGATIONS		\$1,985,481

KANSAS CITY, MO, DISTRICT

TABLE 27-M

**REGULATORY PROGRAM
(See Section 34 of Text)**

Item and PWI Number	Federal cost FY 01
PERMIT EVALUATION (100)	
REG--Permit Evaluation--008204	\$2,184,694
ENFORCEMENT (200)	
REG--Enforcement--008205	148,356
ENVIRONMENTAL IMPACT STATEMENT (500)	
--088870	31,958
ADMINISTRATIVE APPEALS (600)	
--013579	3,651
GRAND TOTAL REGULATORY PROGRAM	<u>\$2,368,659</u>

PORTLAND, OR DISTRICT

The territorial limits of the Portland District include the Pacific coastal drainage area of the State of Oregon, the portions of the States of Oregon and Washington which lie within the Columbia River watershed downstream of the Umatilla Bridge below McNary Dam, and south central Oregon west of the Malheur River and the Steens Mountains, but not including that part which drains into the Klamath Lake and River.

Improvements

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Navigation

1. BONNEVILLE NAVIGATION LOCK, BONNEVILLE DAM, OR AND WA

Location. On Columbia River 40 miles east of Portland, OR about 146 miles above mouth of river.

Existing project. The existing lock chamber is 76 feet wide and 500 feet long with 24.2 feet depth of water over the sill. Construction of a new navigation lock just south of the existing lock was authorized in the FY 1985 Supplemental Appropriations Act, Public Law 99-88, August 15, 1985. Inland Waterways Trust Fund will fund 50 percent of the project cost in accordance with the Water Resources Development Act of 1986, Public Law 99-662, November 17, 1986. The new lock chamber is 86 feet wide and 675 feet long with 19 feet depth of water over the sill. Cost for construction of the new navigation lock was \$348,100,000. Construction of the lock is completed. The lock opened to shipping on March 26, 1993. Restoration of the grounds and historic buildings is complete.

Local cooperation. None required.

Operations during fiscal year. Completed real estate activities to obtain title to project lands.

2. CHETCO RIVER, OR

Location. Rises in Siskiyou Mountains of Coast Range at an elevation of 4,000 feet, flows for about 51 miles in a circuitous route, and empties into Pacific Ocean at Brookings, OR, 300 miles south of entrance to Columbia River and 345 miles north of San Francisco Bay. (See National Oceanic and Atmospheric Administration Charts 18600 and 18203).

Existing project. Provides for two jetties at the mouth of the river. Modification of 1965 authorized an entrance channel 120 feet wide by 14 feet deep; a barge turning basin about 250 feet wide, 650 feet long, and 14 feet deep; and a small boat access channel 100 feet wide by 12 feet deep. Also authorized was a 450-foot extension of north jetty with an increase in elevation of existing portion and a protective dike about 1,800 feet long with a top elevation of 18 feet. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 6.9 feet and extreme is about 12 feet.

Construction of jetties was completed December 1957. Removal of rock pinnacles and an abandoned bridge structure was accomplished in June 1959. Under authorized modification of October 1965, two contracts were completed. Construction of entrance channel and extension of north jetty was completed in July 1969. Construction of a protective dike, turning basin and small boat access channel was completed in March 1970. The authorization was modified by WRDA 92 to "direct the Secretary of the Army to assume maintenance of the approximately 200-foot long access channel to the south commercial boat basin consistent with authorized project depths". This channel will be maintained in lieu of the small boat access channel.

Local cooperation. Fully complied with.

Terminal facilities. The Port of Brookings has developed two large boat basins, one for commercial fishing boats and the other for sport boats, and a public boat launching ramp. There are four fish

receiving docks and a sea-going barge dock for lumber loading and storage. There is also a privately owned marina and a Coast Guard Station.

Operations during fiscal year. Maintenance: A total of 38,332 cubic yards of material was removed by the U.S. hopper dredge Yaquina.

3. COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WA, AND PORTLAND, OR

Location. The Columbia River rises in British Columbia, through which it flows for 425 miles. It enters the United States in northeastern Washington, and empties into the Pacific Ocean 645 miles north of San Francisco Bay and 160 miles south of Strait of Juan DeFuca. Total length of river is 1,210 miles. (See NOAA Charts 18520, 18521, 18522, 18523, 18524, 18526, and 18531; also Geological Survey Map of Washington.) Willamette River rises in Cascade Range in western Oregon, flows northerly, and empties into Columbia River about 100 miles from the sea. Its length from source of Middle Fork is about 294 miles. Project embraces 103.5 miles of Columbia River below Vancouver, WA, and 14.6 miles of Willamette River below Portland, OR. (See NOAA Chart 18526 and Geological Survey Map, State of Oregon.)

Existing project. Provides for a channel 35 feet deep and 500 feet wide from River Mile 106.5 to 105.5, the distance between existing highway and railroad bridges; a channel 40 feet deep and 600 feet wide from Vancouver, WA, River Mile 105.5 to mouth of Columbia River, River Mile 3; a turning basin at Vancouver, WA, 40 feet deep, 800 feet wide, and about 5,000 feet long; a turning basin at Longview, WA, 40 feet deep, average width of 1,200 feet, and about 6,000 feet long; and a channel 40 feet deep in the Willamette River with varying widths of 600 to 1,900 feet from the mouth (River Mile 0) to Broadway Bridge (River Mile 11.6) which encompasses Portland Harbor area, subject to provisions that channel from mouth of Willamette River to turning basin at Vancouver, WA, be limited to 500 feet in width until need for additional width is demonstrated by developed traffic. Existing project also provides for auxiliary channels 10 feet deep and 300 feet wide near Cathlamet, WA; 30 feet deep and 300 feet wide in St. Helens, (Oregon); and 30 feet deep and 500 feet wide connecting upper end of St. Helens Channel with main ship channel of Columbia; 24 feet deep and 200 feet wide along frontage of town of Rainier, OR, extended to its upper and lower ends to deep water in Columbia River, 8 feet deep and 150 feet wide from this depth in Columbia River through old mouth of Cowlitz River to a point about 3,000 feet upstream from present terminus of harbor line; a channel from Longview Port dock downstream along pierhead line and past Weyerhaeuser Timber

Co. plant at Longview to a connection with main ship channel below Mount Coffin, the downstream 2,400 feet of this channel to be 30 feet deep and 300 feet wide and remainder to be 28 feet deep and 250 feet wide; construction of a small boat mooring basin at Astoria, OR, to include a sheet pile, sand-filled breakwater about 2,400 feet long with a 30-foot roadway along its full length, and steel pile shore wings totaling about 1,460 feet long and for stone-and-pile dikes and revetments. Plane of reference in estuary from mouth of Harrington Point is mean lower low water; thence to Portland and Vancouver, adopted low water. Tidal range between mean lower low water and mean higher high water at mouth of Columbia is about 8 feet, and at Portland and Vancouver, about 3 feet at low stage of rivers. Extreme tidal ranges are about 13 and 3 feet, respectively. Annual freshets have little effect on stage of tide at mouth of Columbia; at Portland and Vancouver, they average about 12 feet, while highest know reached a stage of 33 feet above water at Portland.

Work on the 40-foot channel in Columbia River from Portland, OR, and Vancouver, WA, to the sea was completed in 1976. Auxiliary channel in vicinity of Longview was completed in 1949, and improvement of mouth of Cowlitz River and small boat mooring basin at Astoria were completed in 1950. Project depths are maintained all year except for the period immediately following the annual freshet in May-June when shoaling occurs at several locations. Timing of vessel movement with tidal fluctuations permits maximum draft conditions. In Columbia and Willamette Rivers between mouth and Broadway Bridge at Portland a depth of 40 feet at low tide and 42 feet at high tide is practicable all year. In Columbia River between mouth of Willamette River and Vancouver, WA, depths of 40 and 42 feet at low and high tide, respectively, are practicable all year. (For details relating to previous project, see pages 1995 and 1998 of Annual Report for 1915 and page 1746 of Annual Report for 1938.)

Local cooperation. Fully complied with. Requirements are described in full on page 37-3 of FY 1981 Annual Report.

Terminal facilities. At Portland, OR, there are six Port of Portland terminals consisting of 43 berths equipped to handle general cargo, bulk cargo, lumber, automobiles, lift-on-lift-off and roll-on-roll-off containers, and breakbulk vessels. The Port of Portland owns and operates a major ship repair yard, which includes the west coast's largest, and the world's third largest, floating dry dock. Also available in the harbor area are privately operated facilities for receiving, storing and outloading petroleum, wood chips, grain, logs, sand and gravel, cement, and steel products.

At Astoria, OR, there is a terminal with facilities for receiving and handling all types of general cargo.

At Vancouver, WA, there are municipal facilities capable of berthing five ships simultaneously. Each berth is completely outfitted with mechanical and lift facilities for receiving and handling all types of cargo. The port has a low dock to handle roll-on-roll-off and side-port discharging vessels. The grain terminal has a storage capacity of 4,500,000 bushels.

Port of Longview has a public terminal on Columbia River and a privately owned grain elevator with a capacity of 6,900,000 bushels. This port also has a heavy lift facility, with a capacity of 600 tons.

Port of Kalama has two berthing areas, one port owned and one private.

At other locations on Columbia River between Portland and Columbia River entrance there are sufficient private facilities to accommodate river vessels and fishing craft. These facilities, with planned extensions, are considered adequate for existing commerce. (For details, see Port Series Nos. 33 and 34, Corps of Engineers, published in 1974 and 1975 respectively.)

Operations during fiscal year. Maintenance: A total of 7.5 million cubic yards of material was removed. The U.S. hopper dredge Essayons removed 4.1 million cubic yards, the U.S. hopper dredge Yaquina removed 196,250 cubic yards, the pipeline dredge Oregon removed about 2.8 million cubic yards, and the contract hopper dredge Padre Island removed 394,600 cubic yards. The sand bypasser Sandwick worked eleven days in the Wahkiakum Ferry Crossing Channel. Continued repair work on Astoria East Boat Basin Breakwater.

4. COLUMBIA RIVER AT BAKER BAY, WA

Location. Baker Bay is a shallow body of water about 15 square miles in extent on the north side of Columbia River Estuary near its mouth. The bay is separated from the river by Sand Island, a low-lying sand bar only a few feet above high tide level. (See NOAA Chart 18521.)

Existing project. A mooring basin 10 and 12 feet deep, about 20 acres in extent with protecting breakwaters; and a west channel 16 feet deep and 200 feet wide for the first 2,000 feet, then 16 feet deep and 150 feet wide to the boat basin; a channel east of Sand Island to Port of Ilwaco, a distance of about 4 miles. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is about 8 feet, and extreme about 13 feet.

Channel extending through easterly passage of Sand Island was completed in 1934. This portion of authorized project is not passable and is not maintained at the present time. Dredging west

channel to 8 feet was accomplished September 1948. Deepening west channel to 10 feet, and boat basin and breakwater construction at Ilwaco, WA, was finished December 1957, and again, deepening of the west channel to 16 feet completed in August 1985 under Section 107, finished the project.

Local cooperation. Fully complied with.

Terminal facilities. Wharves, floats, ramps, and berths, for fishing craft, barges and tow-boats. Small-boat basin and protecting breakwater provides moorings for numerous fishing and recreational craft all year. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A project condition survey and miscellaneous inspections were performed.

5. COLUMBIA RIVER BETWEEN CHINOOK, WA, AND HEAD OF SAND ISLAND

Location. At easterly end of Baker Bay, lying on north side of Columbia River near mouth. (See Coast and Geodetic Survey Chart 6151.)

Existing Project. Channel 10 feet deep and 150 feet wide, extending from head of Sand Island to Chinook; a turning and mooring basin at upper end of channel, 10 feet deep, 660 feet long, and ranging from 275 to 500 feet wide; reconstruction of easterly 393 feet of existing breakwater; and extension of existing breakwater easterly and thence northerly to connect with shore in vicinity of Portland Street, Chinook, WA. Tidal range between mean lower low water and mean higher high water is about 8 feet and extreme about 13 feet.

Project as originally authorized was completed in 1940. The 10-foot channel depth modification was accomplished September 1958. Rehabilitation of existing breakwater was completed September 1962.

Local cooperation. Fully complied with.

Terminal facilities. Chinook Packing Company owns a wharf for receiving fresh fish, and one additional fish buying company is located at Chinook. A portion of wharf is also used as a public landing. At upper end of channel there is a turning and mooring basin with facilities for mooring 350 fishing and recreational craft. Adequate terminal and mooring facilities include a public launching ramp, hoist with 10-ton capacity and suitable supply facilities.

Operations during fiscal year. Maintenance: A project condition survey and miscellaneous inspections were performed.

6. COLUMBIA RIVER AT THE MOUTH, OR AND WA

Location. The Columbia River entrance is 645 miles north of San Francisco Bay. Project is about 120 miles downstream of Portland, OR and Vancouver, WA. For description of Columbia River see Section 3.

Existing project. Provides for a one-half-mile-wide channel across a bar 55 feet deep (mean lower low water) for the northernmost 2,000 feet, and 48 feet deep (mean lower low water) along the southern 640 feet, to be secured by two rubblemound jetties, spur jetty "A" on the north shore and by dredging. The north jetty is about 2.5 miles long and the south jetty about 6.6 miles long, spur jetty "A" is about 0.3 miles long. Tidal range on bar between mean lower low water and mean higher high water is about 8 feet, and extreme about 13 feet.

The originally authorized project depth of 40 feet was completed in 1918, south jetty completed in 1914 and north jetty in 1917. A spur jetty (jetty "A") was completed in 1939 (repaired in 1961) for the purpose of channel stabilization. Spur jetty "B" currently is classified "inactive." Dredging of the 48-foot bar channel started April 1956 was completed in September 1957. South jetty rehabilitation started June 1962 was completed September 1964. North jetty rehabilitation started January 1965 was completed April 1965. Additional rehabilitation of the south jetty was initiated in May 1982 and completed in September 1982. Deepening bar channel to 55 feet completed September 1984. In FY 95 a 500-foot section of the south jetty was removed to allow unimpeded access by fisheries resources to 603 acres of intertidal habitat under Section 1135 authority. Project dimensions were available at end of fiscal year. (For details relating to previous projects, see page 1999, Annual Report for 1915 and page 1740 of Annual Report for 1938.)

Local cooperation. Fully complied with. Local interests contributed \$500,000 toward construction of the north jetty, which was completed in 1917.

Operations during fiscal year. Maintenance: A total of 4.1 million cubic yards of material was removed. The U.S. hopper dredge Essayons removed 2.3 million cubic yards, and the contract hopper dredge Padre Island removed 1.8 million cubic yards.

7. COLUMBIA RIVER BETWEEN VANCOUVER, WA, AND THE DALLES, OR

Location. On Columbia River, between Interstate Bridge at Vancouver, WA, 106.5 miles above mouth and The Dalles, OR, mile 191, a distance of 84.5 miles. For description of Columbia River, See Section 3, "Columbia and Lower Willamette Rivers Below Vancouver, WA, and Portland, OR."

Existing project. Channel 27 feet deep at low water and 300 feet wide between Vancouver, WA, and The Dalles, OR, 84.5 miles; a channel 10 feet deep at low water and 200 feet wide at upstream entrance to Oregon Slough, OR; a suitable turning basin adjacent to site of port development in vicinity of Camas and Washougal, WA; a boat basin at Hood River, OR, 500 by 1,300 feet and 10 feet deep at normal Bonneville pool level, with a connecting channel of same depth to deepwater, and a protecting breakwater on easterly side; a barge channel to waterfront at Bingen, WA, 10 feet deep at normal Bonneville pool level, 200 feet wide and about 1 mile long, and an access channel 7 feet deep at normal Bonneville pool level, 100 feet wide and about 1,000 feet long, to a natural mooring basin for small boats near east end of channel; and construction of The Dalles small boat basin, to provide a breakwater and shear boom protected basin about 400 by 800 feet in size with depth of 8 feet below a pool elevation of 72.5 feet at mean sea level. Tidal range between mean lower low water and mean higher high water at Vancouver is about 3 feet and at Bonneville about 0.2 foot at low stages of the river. Extreme tidal ranges are about 4 feet and 0.4 foot, respectively.

Existing project is complete. Construction of The Dalles small boat basin, was completed in 1949. Channel dredging at upper end of Oregon Slough was accomplished in 1957. Project depth of 27 feet between Bonneville and The Dalles, OR, was achieved April 1959. The 27-foot channel depth between Vancouver, WA, and Bonneville, OR, was completed May 1938. Improvement of lower entrance of Bonneville Dam lock was completed in May 1961. At the present time, the channel is maintained to a depth of 17 feet, which is adequate for user traffic. Construction of a boat basin at Hood River, OR, and of Camas-Washougal, WA, turning basin was accomplished February 1962. Construction of a barge channel in Columbia River near Bingen, WA, was completed September 1963. Small boat recreation channel 100 feet wide 6 feet deep at South Channel Government Island completed 1985 under section 107.

Local cooperation. Fully complied with.

Terminal facilities. At Vancouver, WA, upstream of Interstate Highway bridge at River Mile 108.1 on site of former shipyard are numerous ship-building facilities equipped with railway and river moorage facilities. Also in this area are a paper-storage warehouse with barge slip, two boat-building businesses, and a storage dock with gantry crane. Sites are available for development to suit lessee.

At Camas, WA, about 13.5 miles upstream from Vancouver, there is a private wharf used for transfer of paper-mill supplies and paper to and from barges, and facilities for discharging bulk oils from barges.

At Port of The Dalles (mile 44 above Bonneville) there is a municipal wharf 125 by 1,100 feet for use by tugs and barges. There is a one-story timber and corrugated iron warehouse, 94 by 461 feet, on this wharf. A private elevator with a capacity of 40,000 bushels and a public elevator of 1,113,800-bushel capacity for handling bulk grain to barges are also at The Dalles. Public elevator has rail, truck, and water connections. There is a port owned rail connection about three-fourths mile below municipal wharf where certain types of cargo may be handled between railroad cars and barges.

At numerous locations along the entire waterway there are facilities for transfer of logs to water from trucks and public and private boat basins. Facilities are considered adequate for present commerce.

Operations during fiscal year: Maintenance: Condition surveys were performed. U.S. hopper dredge Yaquina removed 115,700 cubic yards of material. The sand bypasser Sandwich worked 11 days at the downstream entrance to the Dalles Dam navigation lock. The contract clamshell dredge DB Husky removed 979 cubic yards from this location.

8. COLUMBIA RIVER CHANNEL IMPROVEMENTS, OR

Location. The project area includes the Lower Columbia and Willamette Rivers. Work includes deepening the navigation channel to 43 feet, construction of wildlife mitigation features and environmental restoration features. The Columbia River section extends from the mouth at river mile 3 to river mile (RM)106.5. The Willamette River section extends from the mouth to RM 11.6.

Existing project. Use language from C&LW

Local cooperation. The project is sponsored by the six lower Columbia River Ports: Port of Portland, Port of St Helens on the Oregon side and the Port of Vancouver, Port of Woodland, Port of Kalama, and Port of Longview on the Washington side.

Operations during fiscal year: The primary effort for the fiscal year was spent consulting for the aquatic species under the Endangered Species Act with National Marine Fisheries Service and US Fish and Wildlife Service. A contract was let to Sustainable Ecosystems Institute to convene a panel of experts to review and provide input to the Corps, National Marine Fisheries Service and US Fish and Wildlife for the Endangered Species Act (ESA) consultation. The Waterways Experiment Station and the Oregon Graduate Institute performed additional numerical modeling to evaluate salinity,

velocity and water surface elevation changes as a result of a three foot deepening.. Additional data collection for smelt and white sturgeon was also performed by Washington Department of Fish and Wildlife and Oregon Department of Fish and Wildlife.

9. COOS BAY, OR

Location. On Oregon coast 200 miles south of mouth of Columbia River and 445 miles north of San Francisco Bay. It is about 13 miles long and 1 mile wide, with an area at high tide of about 15 square miles. (See NOAA Charts 18580 and 18587.)

Existing project. Two rubblemound, high-tide jetties at entrance; a channel across the outer bar 45 feet deep and 700 feet wide, reducing gradually to 35 feet deep and 300 feet wide near River Mile 1 and continuing to about mile 9; thence a channel 35 feet deep and generally 400 feet wide to mile 15; an anchorage area 35 feet deep, 800 feet wide, and 1,000 feet long at Empire (River Mile 5.5); turning basins at North Bend (River Mile 12.5) and Coalbank (River Mile 14.7) 35 feet deep, 650 feet wide and 1,000 feet long; a channel 22 feet deep and 150 feet wide from Smith's Mill (River Mile 15) to Millington (River Mile 17); a small boat basin, about 500 by 900 feet at Charleston, with a connecting channel, 16 feet deep, 150 feet wide and 6,200 feet long, to deep water in Coos Bay, and construction of a protecting breakwater and bulkhead. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 7 feet and extreme is about 11 feet at both the entrance and at Coos Bay.

South jetty was completed in 1928, north jetty in 1929, and 24-foot channel in 1937. The south jetty was restored in 1941 and 1942 by construction of a concrete cap for full length of the jetty. Excavation of channel to 30 feet deep and generally 300 feet wide from entrance of Isthmus Slough was completed in 1951. Dredging outer bar channel to a depth of 40 feet, decreasing to 30 feet at Guano Rock was completed in 1952. Construction of the Charleston Channel and small-boat basin was completed in September 1956. Rehabilitation of south jetty was started in June 1962 and completed December 1963. Repair of north jetty was completed in August 1989. Construction of the deeper and wider channel to mile 15 was completed in 1979. Deepening of Charleston channel and turning basin completed in 1985 under Section 107. (For details relating to previous projects, see page 1987 to Annual Report for 1915 and page 1728 of Annual Report for 1938.)

A modification to the existing project was authorized in the FY 1996 Energy and Water Development Appropriations Act, Public Law 104-46, November 13, 1995. This authorization provided

for deepening the channel by 2 feet to 47 feet below mean lower low water (MLLW) from the entrance to Guano Rock (river mile 1) and to 37 feet below MLLW from river mile 1 to 15. Public Law 104-46 also provided for deepening by two feet and expanding the turning basin at river mile 12 by 100 feet from 800 by 1000 feet to 900 by 1000 feet. The excavation material for the channel deepening was transported to the ocean for disposal. The cost for preparation of the plans and specifications and the construction of the project was \$11,616,000, of which \$8,116,000 was federal and \$3,500,000 was non-federal. In addition, the sponsor paid 100 percent of the estimated cost for dredging the berth areas.

Local cooperation. Fully complied with. Requirements are described in full on page 37-5 of FY 1981 Annual Report.

The sponsor, International Port of Coos Bay, signed a Project Cooperation Agreement on May 8, 1996 for the project modification to deepen the channel as authorized in Public Law 104-46. In accordance with cost sharing requirements of the Water Resources Development Act of 1986, the Federal Government provided 75 percent of the costs associated with the general navigation features of the project. The non-federal sponsor was required to provide 25 percent of the total construction cost of the general navigation features up front. The sponsor was also required to provide an additional 10 percent of the cost of the general navigation features of the project in cash over a period not to exceed 30 years.

Terminal facilities. At North Bend there is a municipal dock 649 feet long fronting on channel, about 2,380 feet of privately owned mill docks, and three oil receiving terminals in vicinity.

At Coos Bay there is a privately owned dock with a frontage of 1,345 feet, open to the public on equal terms; several small landings for fishing and harbor craft; and three lumber docks with 1,300-foot, 576-foot and 500-foot frontages, respectively.

In the North Spit industrial area, there is one woodchip loading facility having a frontage of 1200 feet and a smaller T-dock operated by the Port of Coos Bay.

At Eastside, on Isthmus Slough, there is a 200-foot dock.

At Empire there is a privately owned lumber dock with frontage of 510 feet, and an oil terminal, owned by Port of Coos Bay, for receipt of petroleum products by barge. A barge slip also owned by the Port was completed in 1986.

At Charleston there are wharves, for receipt of fresh fish and shellfish and a large seafood receiving and processing plant. There are also two municipally owned small-boat basins, open to all on equal terms,

capable of mooring 250 fishing and recreation craft. Servicing facilities for small craft are available at all facilities, and public launching ramps have been constructed in Charleston area by private interests. A privately owned floating moorage on Joe Ney Slough has facilities for mooring about 50 fishing vessels.

At Jordan Cove area there is a dock, 248 feet long, for wood chip ships.

Operations during fiscal year

Maintenance: The US hopper dredge Essayons removed 526,964 cubic yards, and the clamshell dredge Viking removed 127,095 cubic yards.

10. COQUILLE RIVER, OR

Location. Rises in Coast Range, flows generally westerly for about 100 miles, and empties into Pacific Ocean at Bandon, OR, 225 miles south of mouth of Columbia River and 420 miles north of San Francisco Bay. (See NOAA Charts 18580 and 18186.)

Existing project. Two rubblemound high-tide jetties at river mouth, south jetty 2,700 feet long and the north, 3,450 feet long; and a channel 13 feet deep at mean lower low water and of suitable width from the sea to a point 1 mile above old Coquille River Lighthouse, and snagging to State highway bridge at city of Coquille. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth is 7 feet and extreme about 10 feet.

Jetties were completed in 1908 and entrance channel in 1933. North jetty was reconstructed in 1942 and a 750-foot extension to easterly end was constructed in 1951. South jetty was repaired in 1954 and north jetty in 1956. Coquille Lighthouse rehabilitation was completed June 21, 1976. Port of Bandon constructed boat basin facility in conjunction with protective breakwater and entrance channel construction in 1985, under Section 107. (For details relating to previous projects, see page 1986 of Annual Report for 1915 and page 1727 of Annual Report for 1938.)

A plan to deepen the entrance channel of the Coquille River from 13 feet to 18 feet was approved in May 1988. The economics were reevaluated in FY1993 and the project was not economically feasible at that time.

Local cooperation. Restoration of lighthouse using Code 710, Recreation Facilities at Completed Projects funding, required 50 percent cost sharing with non-Federal sponsor (Oregon State Parks).

Terminal facilities. At Bandon: A publicly owned wharf, and a small-boat basin open to all on equal terms.

Operations during fiscal year. Maintenance: U.S. hopper dredge Yaquina removed 3,700 cubic

yards of material from the entrance channel, the contract hopper dredge Westport removed 20,000 cubic yards of materials.

11. DEPOE BAY, OR

Location. Harbor on Oregon coast 100 miles south of mouth of Columbia River. (See Coast and Geodetic Survey Chart 5902.)

Existing project. Two breakwaters north of entrance; an entrance channel 8 feet deep and 50 feet wide; an inner basin 750 feet long, 390 feet wide and 8 feet deep with retaining wall along easterly side; and a stone spending beach. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet and extreme is about 12 feet. Project as originally authorized was completed in 1939 and project modifications, enlarging the basin and deepening to 8 feet, were accomplished in June 1952 and August 1966.

Local cooperation. Fully complied with.

Terminal facilities. Facilities, in inner basin, consist of landings and floats to accommodate operators of excursion and commercial fishing boats. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Initiated investigation of retaining wall foundation. A project condition survey and miscellaneous inspections were performed.

12. PORT ORFORD, OR

Location. On Oregon coast 250 miles south of Columbia River entrance and 390 miles north of San Francisco Bay. (NOAA Chart 18203 and Geological Survey Quadrangle, Port Orford, OR)

Existing project. Improvement of harbor by 55-foot extension of existing locally constructed breakwater and dredging of a turning basin, 340 feet long, 100 feet wide and 16 feet deep. Breakwater was completed October 1968. Turning basin was completed September 1971. The authorization was modified by WRDA 92 to allow the Corps to maintain the authorized navigation channel within 50 feet of the port facility.

Local cooperation. Fully complied with.

Terminal facilities. In FY 2000 local interests replaced the aging wooden pile dock with a sheet pile bulkhead and backfill dock. This dock provides almost 3 acres of dock area and two large-capacity cranes.

Operations during fiscal year. Maintenance: During the summer months the sand-bypasser Sandwick worked 45.2 days.

13. ROGUE RIVER HARBOR AT GOLD BEACH, OR

Location. Rises in Cascade Range in southwestern Oregon; flows westerly through Coast Range, and empties into Pacific Ocean 264 miles south of mouth of Columbia River and 381 miles north of San Francisco Bay. (See NOAA Chart 18202.)

Existing project. Two jetties at entrance, and a channel 13 feet deep and 300 feet wide from ocean to a point immediately below State highway bridge, about 1 mile, including widening channel at a point about 0.25 mile below bridge to form a turning basin 13 feet deep, 500 feet wide, and 650 feet long. At request of local interests, turning basin was located in south portion of estuary downstream from a point 0.25 mile below bridge. This change was effected to permit adequate terminal facilities to be constructed adjacent to turning basin. Mean lower low water is plane of reference. Range of tide between mean lower low water and mean higher high water is 7 feet, and extreme about 14 feet.

Project as authorized has been completed. Construction of two jetties at entrance was completed September 1960. Dredging river channel by contract and entrance bar by government plant was completed October 1961. North jetty rehabilitation along channel side was completed October 1966. Breakwater construction and dredging, under contract awarded in September 1964, was 17 percent accomplished when flood of December 1964 destroyed all completed works. Contract was terminated as further construction at that location was considered unfeasible. Bank protection work at Wedderburn location was completed in October 1972. A breakwater, constructed by Port of Gold Beach, was completed during 1973. In 1985, three pile dikes, located on the south side of channel oceanward of the boat basin entrance, were completed. In 1997, at the direction of Congress, the boat basin entrance channel was relocated approximately 1,000 feet upstream to a new opening in the breakwater provided by the Port of Gold Beach.

Local cooperation. Fully complied with.

Terminal facilities. There are various landings for fishing and recreational craft. At Wedderburn, across river from Gold Beach, is a facility to accommodate excursion passengers and small freight items destined for various private landings between Wedderburn and Agness, OR. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: contract hopper dredge Westport removed 52,277 cubic yards of material from the entrance channel. Sand-bypasser Sandwick worked 9.8 days.

14. SIUSLAW RIVER, OR

Location. Rises in coast range, flows about 110 miles westerly and empties into Pacific Ocean about 160 miles south of entrance of Columbia River and 485 miles north of San Francisco Bay, CA. (See NOAA Charts 19583 and 18580.)

Existing project. Provides for 2 high-tide, rubblemound jetties 750 feet apart at the outer end, the north jetty 8,390 feet long (600 feet unconstructed) and the south jetty 4,200 feet long; an entrance channel 18 feet deep and 300 feet wide from deep water in ocean to a point 1,500 feet inside the outer end of existing north jetty; thence a channel 16 feet deep, 200 feet wide with additional widening at bends, and about 5 miles long, to a turning basin, 16 feet deep, 400 feet wide, and 600 feet long, opposite Siuslaw dock at Florence; a channel 12 feet deep, 150 feet wide from Florence to mile 16.5; and at River Mile 15.5 a turning basin 12 feet deep, 300 feet wide, and 500 feet long. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at mouth of river is 7 feet and extreme about 11 feet. During low stages of river, tidal effect extends to Mapleton, 20.5 miles above mouth. (For details relating to previous project, see page 1988 of Annual Report for 1915.)

A modification to the existing project was authorized by Public Law 96-367, October 1, 1980. North and south jetty modifications were completed in FY 86. Modifications provide for extending the north and south jetties by 1,900 and 2,300 feet respectively. The jetty extensions terminate at approximately the minus 25-foot contour. Spur jetties were constructed on each jetty extension to reduce longshore currents from transporting material around the heads of the jetties. Each spur jetty is 400 feet long and originates approximately 900 feet shoreward of the jetty head. The north jetty spur is oriented 45 degrees to the north of the existing jetty alignment and the south jetty spur 45 degrees to the south of the jetty alignment.

In cooperation with local interests and the U.S. Coast Guard, the entrance channel was realigned in FY00. This has resulted in a safer entrance and reduced dredging.

Local cooperation. Fully complied with.

Terminal facilities. Port dock at Florence, 150 feet wide and 350 feet long, is about 5.3 miles above river entrance and accommodates a fish-receiving station at east end of wharf which maintains a 2-ton capacity winch and supplies gasoline, oil and ice to fishermen. Other facilities at Florence consist of various floatways which provide docking facilities for fishing vessels and other small craft and a floating dock with accommodations for 75 commercial

fishing vessels. Adjacent to commercial basin is mooring basin with accommodations for 200 sport boats of all sizes.

Modern docks for loading ocean-going barges with packaged lumber is maintained at Mapleton and owned by the Davison Lumber Company.

There are also a number of private landings and log booms between Cushman and Mapleton to accommodate river traffic. These facilities are considered adequate for existing traffic.

Operations during fiscal year. Maintenance: Contract hopper dredge Westport removed 99,962 cubic yards of material.

15. SKIPANON CHANNEL, OR

Location. In tidal waterway extending south 2.7 miles from deep water in Columbia River. Channel enters Columbia about 10 miles above mouth and 4 miles below Astoria, OR. (See NOAA Chart 18523.)

Existing project. Channel 30 feet deep and generally 200 feet wide extending from deep water in Columbia River to railroad bridge at Warrenton, OR, distance of 1.8 miles, turning basin of same depth, mooring basin 12 feet deep at mean lower low water at Warrenton, OR, and channel 7 feet deep, generally 40 feet wide, with increased widths at log dumps and terminals, for 4,500 feet via cutoff channel above railroad bridge. Channel is maintained to 17 feet, which is adequate for user traffic. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is about 8 feet; extreme is about 13 feet.

Project as authorized is complete. Dredging river channel and turning basin was completed in 1939. Construction of small-boat mooring basin at Warrenton, OR, was completed October 1957, and fill stabilization work was accomplished in August 1958.

Local cooperation. None required.

Terminal facilities. City of Warrenton owns wharf with a 300-foot frontage open to public on equal terms. One privately owned cannery wharf with a 300-foot frontage is used for unloading fish and handling fish nets. One privately owned boatyard has floats and moorage facilities for use by a maximum of 80 small boats. Small-boat basin has facilities for numerous fishing and recreation craft, and a privately owned lumber mill has a barge loading facility for chips and lumber. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: A project condition survey and miscellaneous inspections were performed.

16. TILLAMOOK BAY AND BAR, OR

Location. Bay is on Oregon coast about 50 miles south of mouth of Columbia River. (See NOAA Charts 18520 and 18558.)

Existing project. Provides for a jetty about 5,700 feet long on north side of entrance and a jetty 8,000 feet long on south side; a channel through bar 18 feet deep and of such width as can be practically and economically obtained; for a channel 200 feet wide and 18 feet deep from deep water in bay to Miami Cove; and for initial dredging to 12 feet deep of a small-boat basin and approach thereto at Garibaldi, OR. Project also provides for improvement of Bayocean Peninsula, OR, by construction of sand and rockfill dike 1.4 miles long, on alignment extending between Pitcher Point and town of Bayocean. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet; extreme is about 14 feet. Hobsonville Channel portion of project is inactive.

Except for construction of Hobsonville Channel portion, classified inactive, channels were completed in 1927, north jetty in 1933, improvement of Bayocean Peninsula in 1956 and small-boat basin in 1958. The north jetty was rehabilitated in 1965 and again in 1991. South jetty construction was initiated in 1969, extended in 1974, and completed to the authorized 8,000 feet in 1978. 18-foot channel to Miami Cove is inactive due to mill closure. (For details relating to previous projects, see page 1989 of Annual Report for 1915 and page 1474 of Annual Report for 1936.)

Local cooperation. Fully complied with. Requirements are described in full on page 37-9 of FY 1981 Annual Report.

Terminal facilities. At Garibaldi: A facility owned by the Port of Bay City, for shipping lumber and receiving logs, a public landing suitable for mooring fishing vessels, towboats, and other craft. Small-boat basin has adequate facilities for mooring fishing and recreational craft. A privately owned boat ramp and moorage is available for recreational craft.

At Bay City: A privately owned wharf used exclusively for receipt of fresh fish and shellfish. Facilities considered adequate for existing commerce.

Operations during fiscal year. Maintenance: Minor repairs were made to the base of the north Jetty.

17. UMPQUA RIVER, OR

Location. Rises in Cascade Range, flows westerly about 120 miles, and empties into Pacific Ocean 180 miles south of Columbia River and 465 miles north of San Francisco Bay. (See NOAA Charts 18580 and 18584.)

Existing project. A jetty on north side of entrance about 8,000 feet long, a south jetty 4,200 feet long

extending to a point 1,800 feet south of outer end of north jetty; dredging to provide a usable entrance channel 26 feet deep, and a river channel 22 feet deep and 200 feet wide, from mouth to Reedsport, a distance of about 12 miles with a turning basin at Reedsport 1,000 feet long, 600 feet wide, and 22 feet deep; deepening of channel at Winchester Bay to 16 feet deep by 100 feet wide for 3,100 feet, then adding 16 feet deep by 100 feet wide for 500 feet, and 12 feet deep by 75 feet wide for 950 feet beyond boat basin making up the East Boat Channel. A new West Boat Channel was added 16 feet deep by 100 feet wide for 4,300 feet and completed in 1984. Project was modified in 1951 to provide a channel in Scholfield River, but this portion of the project is currently inactive. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water at river mouth is 7 feet, and extreme range is about 11 feet.

North jetty was completed in 1930. Extension to original south jetty was completed in 1938. Dredging a 22-foot channel from mouth of river to Reedsport was completed in 1941. Gardiner Channel and turning basin was completed in 1949 and Winchester Bay Channel and mooring basin in 1956. Rehabilitation of south jetty was completed August 1963. Extension of training jetty was completed October 9, 1980. Deepening Winchester Bay East Channel and new West Channel completed 1984 under Section 107. (For details relating to previous projects, see page 2967 of Annual Report for 1898 and page 1732 of Annual Report for 1938.)

Local cooperation. None required.

Terminal facilities. At Gardiner there is about 650 feet of wharf frontage. Also there is an oil unloading facility owned by International Paper Co. for exclusive use of tanker barges. Port of Umpqua owns one wharf with 456 feet of water frontage, of which 228 feet is usable for vessels and another with about 75 feet of water frontage which has not been used generally for commercial shipping.

On Bolon Island across the river from Reedsport a wharf was constructed which has about 5 acres of open storage for lumber and available to all on equal terms.

At Winchester Bay, 2 miles from river entrance there is a major sports and commercial fishing harbor. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: U.S. hopper dredge Yaquina removed 99,411 cubic yards of material, and the sand-bypasser Sandwich worked 17 days at Winchester Bay.

18. WILLAMETTE RIVER AT WILLAMETTE FALLS, OR

Location. Locks and dam covered by this project are at Willamette Falls, a rocky reef in Willamette River at Oregon City, OR, about 26 miles above mouth of river.

Existing project. Canal and locks were originally constructed by private interest in 1873 and were purchased by the United States in April 1915 for \$375,000. Final report on purchase and rehabilitation of canal and locks is in the Annual Report for 1923, when project was reported 98 percent complete. The project includes four locks a canal basin and an extra guard lock used to prevent flooding when river levels are high. The system acts as a fluid staircase between the upper and lower reaches of the Willamette River. Total length of existing canals and locks is about 3,500 feet. Principal features of existing canal and locks at Willamette Falls are set forth in Table 28-J. Ordinary fluctuation of stage of water above locks is 12 feet and extreme, due to flood conditions, 20 feet. Below locks, ordinary fluctuation is 15 feet and extreme 50 feet.

Until the 1940's, the gates were opened manually. Now, the gates are operated by hydraulic pumps controlled by switches in two control stations with the aid of closed-circuit television and radio communication. All the gates have been replaced under minor rehabilitation funds. Existing locks and grounds are in good condition and in continuous operation. New service building was completed in 1988 costing \$523,000. The project was placed on the National Register of Historic Places in 1974, and was established as an Oregon Civil Engineering Landmark in 1991.

As a result of the mill closure in 1996, one of two shifts was eliminated and hours of operation reduced.

Local cooperation. Fully complied with.

Terminal facilities. Simpson Paper closed the mill in 1996 after over 100 years of operations. The mill was sold to West Linn Paper. West Linn Paper has a timber wharf about 850 feet long, extending to and supported by a concrete division wall built in lock canal by the United States. The use of the wharf for operations purposes by the mill may be changed due to shipping changes by the new owner.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Rehabilitated gates 2 and 4.

19. YAQUINA BAY AND HARBOR, OR

Location. Yaquina Bay is on Oregon coast, 113 miles south of mouth of Columbia River. (See NOAA Charts 18580 and 18581.)

Existing project. Two high tide rubblemound jetties at entrance, north jetty 7,000 feet, and south jetty 8,600 feet long; a spur jetty on channel side of south jetty 4,700 feet from its sea end, 800 feet long;

five groins channelward from south jetty; channel 40 feet deep for a general width of 400 feet across bar and at outer end of entrance channel; a channel 30 feet deep and 300 feet wide to a turning basin of same depth, 900 to 1,200 feet wide and 1,400 feet long, and a channel 18 feet deep and 200 feet wide from 30-foot channel at about mile 2.4, thence upstream to abandoned railroad terminus at Yaquina, a distance of about 4.5 miles. Project also provides for two small boat mooring basins at Newport, OR. Mean lower low water is plane of reference. Tidal range between mean lower low water and mean higher high water is 8 feet and extreme is about 12 feet. At mile 1.2 a 1,300 foot long breakwater protecting the Port of Newport South Beach Marina together with an entrance channel 8 feet long by 100 feet wide for a distance of 2,035 feet.

Project as originally authorized was completed in May 1952. Restoration of jetties was completed in 1934 and extension of north jetty 1,000 feet seaward was completed in 1940. Construction of mooring basin at Newport and dredging of channel and turning basin to project dimensions, were completed during fiscal year 1949. Restoration of north jetty was again accomplished in 1956. Under modification of July 3, 1958, extension of north jetty was completed in September 1966, dredging of 40-foot bar channel and 30-foot river channel was completed in October 1968, and extension of south jetty was completed in June 1972. The north jetty was rehabilitated in 1978 and again in 1988. (For details relating to previous projects see Annual Report for 1893, part 4, page 3314, and Annual Report for 1938, page 1736.)

Local cooperation. None required.

Terminal facilities. At McLean Point, on north side of bay, about 2 miles from entrance, Port of Newport has two berths capable of serving ocean-going vessels, one 435 feet long, the second 520 feet long. At the time the second berth was dredged, a retaining wall and fill of 6 acres were constructed adjacent to deep water. There now is 40 acres of filled land adjacent to deep water, and of this total 7 acres were constructed in 1956-57. This facility has necessary carriers and lift trucks for handling lumber cargoes, warehouse for covered cargo storage, and is open to all on equal terms.

Port of Newport also has a public wharf with 300 feet of frontage for servicing fishing boats. In addition, Port of Newport maintains 510 berths for mooring commercial and sport fishing vessels. There are several seafood companies on the bay which have their own facilities for handling fresh fish and crab. Supplies and petroleum products are readily available for small vessels. On south side of bay about 1.2 miles above entrance, Port of Newport has constructed South Beach Marina which can handle

approximately 600 pleasure craft and shallow draft fishing boats. Public facilities include public automobile and boat trailer parking, boat launching ramp, fuel dock, fishing pier, and picnic area. A dry boat moorage of 120 boats is complete. A swing hoist with 3-ton capacity is currently available and one with 60-ton capacity is planned.

About 2.0 miles above entrance, Oregon State University, in conjunction with the Marine Science Center on 52 acres, maintains a 220-foot pier for docking large and small research vessels and a 100-foot float for docking small boats. Docking facilities are restricted to research vessels and State of Oregon small boats.

Operations during fiscal year. Maintenance: US hopper dredge Yaquina removed 198,284 cubic yards of materials. Completed repair of north jetty. Continued ocean dredge material disposal site evaluation.

20. YAQUINA RIVER, OR

Location. Rises in Coast Range, flows about 50 miles in a westerly direction, and empties into Yaquina Bay, on Oregon coast. (See US Coast and Geodetic Survey Charts Nos. 5802 and 6058.)

Existing project. Provides for two controlling half-tide dikes of piling, brush, and stone, each about 1,100 feet long (constructed by local interests), and for a channel 10 feet deep and generally 150 feet wide on Yaquina River and 200 feet wide in Depot Slough, extending from town of Yaquina near RM 4.0 to Toledo at RM 14.4.

Mean lower low water is plane of reference. Tidal range between lower low water and mean higher high water is 8 feet and extreme about 12 feet. Freshet heights are about 12 feet at mouth of Depot Slough. Channel work authorized March 1913 was completed in 1914. Additional work authorized in 1960 was completed in 1969.

Local cooperation. Fully complied with.

Terminal facilities. Near town of Yaquina at river mouth, which is also head of Yaquina Bay, there is a moorage for small vessels and a small-craft shipyard. The Port of Toledo has public-terminal facilities for accommodation of local craft. There are also privately owned facilities for loading lumber barges, receipt of bunker fuel, and log rollways for receipt of logs. These facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance: None required.

21. PROJECT CONDITION SURVEYS

Hydrographic surveys are conducted to determine navigation conditions at boat basins, small navigation projects, and channels not funded on a project basis

for the current fiscal year. Soundings in subject areas are conducted in order to evaluate shoaling conditions. Hydrographic charts are prepared and distributed. Fiscal year costs were \$36,407. See Table 28-I for surveys conducted during FY01.

22. NAVIGATION ACTIVITIES UNDER SPECIAL AUTHORIZATION

Navigation Activities Pursuant to Section 107 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended. In addition to general requirements, each project is limited to a federal statutory cost of not more than \$4,000,000. The local sponsor must agree to provide an amount, in cash, not less than 10 percent or more than 50 percent of total project cost for navigation depending upon the planned depth of channel or basin; pay an additional 10 percent of the construction costs in cash over a period not to exceed 30 years after project completion. The non-federal sponsor must also agree to provide, maintain, and operate an adequate public parking, landing or wharf, service facilities, berthing areas, floats, pier, slips and similar marina and mooring facilities. The remaining portion of the project, such as the access channel or breakwater structure, is maintained by the Corps of Engineers at Federal expense within a limited amount. Federal expenditures for operation and maintenance under the Section 107 authority are administratively limited to the greater of \$4,500,000, or 2.25 times the Federal costs of the project including costs for the feasibility through the construction phases.

No projects were under construction during the fiscal year.

Shore Protection

23. SHORE PROTECTION ACTIVITIES UNDER SPECIAL AUTHORIZATION

Protection of the shores of publicly owned property from hurricane and storm damage pursuant to Section 103 of the River and Harbor Act of 1962, Public Law 874, 87th Congress, as Amended. In addition to general requirements, each project is limited to a Federal statutory expenditure of not more than \$3,000,000 per year. Costs for protection of Federally owned property are 100 percent Federal. Costs assigned to areas meeting public use criteria are 35 percent non-Federal. Costs assigned to protection of privately owned undeveloped lands and shores that are not open to the public are 100 percent non-Federal.

See Table 28-L for expenditures under Section 103 during the fiscal year.

No projects were under construction during the FY.

Flood Control

24. APPLEGATE LAKE, ROGUE RIVER BASIN, OR

Location. In Jackson County, OR, on Upper Applegate River, a tributary of Rogue River, at River Mile 46, about 23 airline miles southwest of Medford, OR.

Existing project. A gravel-fill embankment dam, 242 feet high from streambed to crest with an overall length of 1,300 feet. A gate-controlled concrete chute-type spillway on the left abutment, and a regulating outlet conduit, and intake tower with multilevel intakes on the left side of valley floor. Lake, 5 miles long, provides 75,000 acre-feet of usable storage for flood control and water conservation utilization. Project controls runoff from a drainage area of 223 square miles. In addition to flood control, reservoir is operated to provide irrigation, fish and wildlife enhancement, water quality control, and recreation benefits. Recreation facilities were provided by the Corps of Engineers, with operation and maintenance by the USFS under a memorandum of agreement. Project is complete and operating.

Freshets regulated by Applegate Lake on Applegate River and Rogue River are shown in Table 28-K.

Local cooperation. Authorizing act requires that State of Oregon insure maintenance of stream flow released for fishery. In addition, costs allocated to irrigation would have to be repaid in a manner and to an extent consistent with reclamation laws and policies. Oregon Department of Fish and Wildlife made filing May 31, 1962 with State Engineer for water rights for use of stored water and natural flows for fish habitat improvement in amounts and at times specified in project authorization. The U.S. Bureau of Reclamation has made a feasibility study of Applegate Irrigation Division. The results of the study indicate that at present there does not appear to be a feasible Federal irrigation project for the Applegate River valley. Local interests have furnished all local cooperation specified by the 1970 Flood Control Act. The assurances were approved by the Secretary of the Army on May 8, 1975.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

25. BLUE RIVER LAKE, OR

Location. On Blue River, a major tributary of McKenzie River, 1.8 miles above confluence of the two streams at the confluence of Quartz Creek and Blue River and about 42 miles easterly of Eugene, OR.

Existing project. A gravel-fill embankment dam 1,329 feet long at crest including spillway and 319 feet above the lowest point of the general foundation. A concrete gravity chute-type spillway with two

gates is located on left abutment. Outlet works are in left abutment. On left shore of reservoir an earth-and-gravel fill embankment, about 1,535 feet long and 70 feet high, closes a low saddle between Blue River and McKenzie River. Project controls runoff from drainage area of 88 square miles. Reservoir provides 85,000 acre-feet of usable flood control storage and is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigation and other purposes. Recreation facilities are provided by the U.S. Forest Service under a Memorandum of Agreement. Project is complete. Construction of dam and appurtenant works was initiated in May 1963 and operation for flood control was effective in October 1968. Settlement of claims was completed in May 1974.

Eugene Water and Electric Board (EWEB) was granted a FERC license in November 1989 to install two small hydropower units at Blue River Lake project. EWEB has delayed their plans for hydropower units pending the conclusion of a Corps proposal to add water temperature control to the regulating outlet tower. Refer to the Willamette River Temperature Control project write-up for additional information.

Freshets regulated by Blue River Lake project on Blue River, a major tributary of McKenzie River, are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance work performed.

26. COTTAGE GROVE LAKE, OR

Location. On Coast Fork of Willamette River, 29 miles from mouth. Coast Fork rises in Douglas County, OR, on western slope of Cascade Range and northern slope of Calapooia Range, flows north for 49 miles, and unites with Middle Fork to form main Willamette River.

Existing project. An earthfill dam, 1,750 feet long at crest, 114 feet high from lowest point of the general foundation, a concrete gravity free overflow spillway 264 feet long near the right abutment, and a concrete gravity non-overflow section 96 feet long forming the right abutment. Total length of dam is 2,110 feet. Outlet works, consisting of three gate-controlled conduits, pass through spillway section. Reservoir provides 30,060 acre-feet of usable flood control storage and controls runoff of drainage area of 104 square miles. Project is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low waterflow for navigation and for other purposes. Recreational development consists of day use and overnight facilities at five sites operated by the Corps of Engineers. Construction of project initiated August 1940 was completed April 1952. Dam and reservoir

have been in continuous operation since September 1942.

Freshets regulated by Cottage Grove Lake on Coast Fork Willamette River are shown in Table 28-K.

Local cooperation. Development of additional recreation facilities will require a local sponsor willing to cost share and assume all operation and maintenance of park facilities.

Operations during fiscal year. Maintenance: Routine operation and maintenance work continued.

27. DORENA LAKE, OR

Location. On Row River, OR, 7 miles from mouth. Row River rises in Lane County on western slope of Cascade Range, flows northwest for 19 miles, and enters Coast Fork of Willamette River 19.5 miles above mouth.

Existing project. An earthfill embankment dam, 3,352 feet long at crest and 145 feet high from lowest point of the general foundation. Concrete gravity free-overflow spillway, 200 feet long, forms right abutment. Outlet works on five slide-gate-controlled conduits pass through spillway section. Reservoir provides 70,500 acre-feet of usable flood control storage and controls runoff of 265 square miles. The Project is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low water flows for navigational and other purposes. Construction of project initiated June 1941 was completed October 1952 except for construction of additional recreation facilities that were funded under the Code 710 program. Future recreation facility construction will be accomplished in accordance with the cost-sharing contract with Lane County, OR. Dam and reservoir have been in continuous operation since November 1949.

Freshets regulated by Dorena Lake project on Row and Coast Fork Willamette Rivers are shown in Table 28-K.

Local cooperation. A multiple project cost sharing agreement has been in force with Lane County since Sept. 1976. It includes 4 projects and 14 parks. At Dorena Lake, 6 parks included in the agreement are managed by Lane County under a lease agreement. Future recreation development will require cost sharing.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Replaced water systems in recreation areas.

28. ELK CREEK LAKE, ROGUE RIVER BASIN, OR

Location. In Jackson County, OR at River Mile 1.7 on Elk Creek, a tributary of Rogue River, about 26.5 miles northerly from Medford, OR.

Existing project. Construction work for the 249-foot high roller compacted concrete gravity dam, 2,600 feet long at the crest, with a gate controlled concrete chute spillway, regulating outlet conduits, power penstock and multiple use intake tower attached to the upstream face of the dam has been stopped due to a court injunction. The project would control runoff from a drainage area of 135 square miles, and provide future municipal and industrial water supply, irrigation, fish and wildlife enhancement, water quality control, and recreation benefits.

Funds to initiate preconstruction planning were appropriated in FY65, and for construction in FY71. Construction was deferred in FY77 due to a lack of state support. Following significant review, evaluation, and a public hearing, the Water Policy Review Board reversed its position and in April 1981 voted to support Elk Creek. Funds were appropriated in FY82 and FY83 to update and continue project design, plans, and specifications. Funds were appropriated in FY85 to resume construction. After initiation of construction, an injunction was placed against completion of the project and additional analysis under National Environmental Policy Act (NEPA) was required in order to remove the injunction. Construction of the project was terminated with the project at 83 feet, one-third its design height.

After completion of the final Environmental Impact Statement Supplemental #2, the Department of Justice filed a motion with the Court to remove the injunction. The Ninth Circuit Court of Appeals issued a ruling on April 21, 1995. In a 2-1 decision, the Court also reversed the District Court decision that EISS #2 met the requirements of the earlier Ninth Circuit opinion and awarded attorneys fees to the plaintiffs. The case was remanded with instructions to prepare a third supplement adequately addressing all issues raised under the NEPA process.

Due to the Ninth Circuit Court of Appeals decision and the current Federal budgetary climate, the Corps does not plan to perform the environmental studies under NEPA necessary to remove the Federal court injunction against completion of the project. Therefore, an evaluation of the requirements for long term of the project in its uncompleted state will be required.

Although the Corps has no plans to perform the NEPA studies required to remove the injunction at this time, removal of a section of the spillway and left abutment will not prevent future completion of the project. Removing a section of the dam will provide passive fish passage in accordance with the language in the FY97 Energy and Water Development Appropriations Act. In addition, it is the most cost effective method to provide fish passage over the

long term with the project in an uncompleted state. Until construction of the fish passage modification is complete, fish passage around the project will continue to be provided by the Department of Fish and Wildlife using Corps' funds to operate an existing trap and haul facility.

Funds were not available to construct the fish passage corridor in FY00, so consultations began with the National Marine Fisheries Service (NMFS) concerning alternatives for long-term fish passage at Elk Creek under the Endangered Species Act. Four potential upstream fish passage alternatives were evaluated in the Corps' biological assessment. The National Marine Fisheries Service issued a biological opinion in January 2001. It stated that the fish passage corridor, through removal of a section of the dam, was the only alternative that would avoid jeopardy to the continued existence of the species. It stated that there was the potential that risks associated with a new trap and haul facility could be reduced to an acceptable level.

Local cooperation. Authorizing act requires that State of Oregon take action prior to construction to insure maintenance in stream of flow to be released for fishery. In addition, costs allocated to irrigation would have to be repaid in a manner and to an extent consistent with the U.S. Bureau of Reclamation laws and policies. On February 24, 1966, State of Oregon Water Resources Board filed for withdrawal rights of 25 cubic feet per second to maintain a minimum flow for fish. Development of recreation facilities requires a local sponsor willing to cost share in recreation development and assume operations and maintenance of park facilities.

Operations during fiscal year. New Work: Operation during construction continued.

29. FALL CREEK LAKE, OR

Location. On Fall Creek, a tributary of Middle Fork Willamette River, about 7 miles above confluence of the streams and about 19 miles southeasterly of Eugene, OR.

Existing project. An earth-and-gravel fill embankment about 5,100 feet long at crest and 193 feet high from lowest point of the general foundation. A gated concrete gravity spillway is in left abutment. Outlet is in right abutment. Reservoir provides 115,000 acre-feet of usable flood control storage and is operated as a unit of coordinated reservoir system to protect Willamette River Valley and increase low waterflows for navigation and other purposes.

Construction of project began May 1962 and was essentially complete November 1965. Reservoir storage for flood control was effective October 1965. Sky Camp Lodge was completed October 1978. Future recreation facilities will be provided in accordance with the cost-sharing contract with Bethel

School District. Bethel School District has a sub-agreement with the Springfield Kiwanis Club for management of this facility. The Corps manages one park at the project.

Freshets regulated by Fall Creek Lake project on Fall Creek, a tributary of the Middle Fork, Willamette River are shown in Table 28-K.

Local cooperation. Fall Creek Lake is included in the Lane County multiple project cost sharing agreement. Two parks are managed by Lane County under lease agreement. Future development will require a supplement to the cost sharing agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

30. FERN RIDGE LAKE, OR

Location. On Long Tom River, 23.6 miles from the mouth. Long Tom River rises in Lane county, OR, on eastern slope of Coast Range, flows north for 50 miles, and enters Willamette River 147 miles above its mouth.

Existing project. A main dam 6,624 feet long at crest and 49 feet high from lowest point of the general foundation and two auxiliary dikes, 915 and 3,929 feet long, along northeasterly boundary of lake. Main dam consists of an earthfill embankment dam 6,330 feet long, a concrete gravity spillway near left abutment with a non-overflow structure 46 feet long, containing outlet works, and an overflow structure, 248 feet long, controlled by six automatic gates. Project includes rectification of channel of Long Tom River downstream of dam. Reservoir provides 110,000 acre-feet of usable flood control storage and controls runoff of tributary drainage area of 275 square miles. Reservoir protects Long Tom River Valley and is operated as a unit of coordinated reservoir system to protect Willamette River Valley generally and to increase low water-flows for navigation and other purposes. Dam was originally constructed in 1941 to height of 47 feet. Provision of additional storage for flood control was obtained in 1965 by raising embankments 2 feet to 49 feet above lowest point of the general foundation.

Construction of project initiated April 1940 was completed August 1951, except for provision of additional storage for flood control authorized in 1962 and completed April 1965, and construction of additional recreation facilities funded through the Code 710 program. Construction of three waterfowl impoundments was completed in 1994 under Section 1135 authority. Dam and reservoir have been in continuous operation since December 1941. Development of future recreation facilities will be in accordance with the cost-sharing contract with Lane County, and requires a 50 percent contribution by the county. Development is subject to availability of funds by the Government and the county.

Freshets regulated by Fern Ridge Lake project on Long Tom River are shown in Table 28-K.

Local cooperation. Fern Ridge Lake is included in the Lane County multiple project cost sharing agreement. Three parks are managed by Lane County under lease agreements. Future development will require cost sharing. The Oregon Department of Fish and Wildlife manages 5,000 acres of land and water for migratory waterfowl under a lease agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

31. LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR AND WA

Location. On the Columbia River and tributaries between Sandy River, OR, and mouth of Columbia River.

Existing project. Provides for construction of 224,000 linear feet of bank protection works at 96 locations along Lower Columbia River below River Mile 125 and along principal tributaries in this reach, to protect existing improvements such as levees and developed industrial lands from further erosion. Existing project is a unit of general comprehensive plan for flood control, navigation, and other purposes in Columbia River Basin. Construction of project began in July 1961 and is 88 percent complete. A total of 191,000 linear feet of bank protection work at 84 locations has been completed. Estimated Federal cost is \$28,000,000.

Local cooperation. Flood Control Act of 1950 provides local interests furnish lands and rights-of-way; make necessary highway, highway bridge, and utility alterations; hold the United States free from damages; and maintain and operate completed works. Under Section 103 of the Water Resources Development Act of 1986, Local Interests will also be required to make a cash contribution for construction of each site. Estimated costs for all requirements of local cooperation are \$2,000,000.

Operations during fiscal year. New Work: Coordination with sponsors and evaluation of local erosion problems continued. One bank protection project was under construction as follows:

Barlow Point, WA

Location: Consolidated Diking Improvement District No. 1 (CCDID#1) is located on the north bank of the Columbia River in Cowlitz County, Washington. The district is approximately 38 miles downstream from Portland, Oregon. Barlow Point is point of land that protrudes into the Columbia River on the Washington shore at Columbia RM 61.8. The area of CCDID#1 is nearly 10,000 acres, of which 2,722 acres are in the cities of Longview and West Kelso. Longview alone has protected land and improvements exceeding \$3 billion in value. Erosion

of Barlow Point had been progressing at an average rate of about five feet per year for the last several years and threatened to encroach into the toe of the levee.

Project Description: Construction consisted of placement of rock-filled erosion protection mattresses over compacted fill covering an area of approximately 1220 feet long by 24 feet wide from an existing downstream beach access area to the existing riprap at the upstream end, with plantings 2 foot on center of willows and dogwoods.

Local cooperation: The Consolidated Diking Improvement District No. 1 signed a Project Cooperation Agreement on August 21, 2000.

Operations during fiscal year: A construction contract was awarded on September 16, 2000. Construction was completed in January 2001.

32. MOUNT ST. HELENS SEDIMENT CONTROL, WA.

Location. On the North Fork Toutle River, 2 miles upstream from its confluence with the Green River, in Cowlitz County, southwest Washington. The river systems impacted by the project include Toutle, Cowlitz and Columbia Rivers. Most of the population affected by the problems reside in the communities of Longview, Kelso, Lexington, and Castle Rock, Washington.

Existing project. The project was authorized by the Supplement Appropriations Act, 1985 (Public Law 88, 99th Congress, August 15, 1985). The Act includes authorization "... to construct, operate and maintain a sediment retention structure near the confluence of the Toutle and Green River, Washington, with such design features and associated downstream actions as are necessary, in accordance with the Feasibility Report of the Chief of Engineers dated December 1984." The project will provide a permanent solution to potential flooding on the Cowlitz River from sedimentation problems created by the eruption of Mt. St. Helens. The Decision document recommended construction of a single sediment retention structure (SRS) with a 125-foot high spillway at the Green River site on the North Fork Toutle River, improvements to the levee system at Kelso, Washington, and dredging downstream from the SRS.

Local cooperation. Local interests were responsible for provision of all lands, easements, and rights-of-way for the sediment retention structure, dredging disposal areas, and levee improvements. Local interests were also responsible for all alterations and relocations of buildings, roads, bridges and other structures or utilities made necessary by implementation of the project. In addition, operation and maintenance of fish facilities, the levee system at Kelso and dredged material

disposal sites are the responsibility of local interests. Cowlitz County offers visitor services in their viewpoint area. Non-federal cash contribution is \$3,600,000 and the estimated non-federal land, easements, right-of-ways, and relocations costs are \$21,000,000.

Operations during fiscal year. New work: Coordination with Federal and local agencies continued. Maintenance: Routine operation and maintenance performed.

33. WILLAMETTE RIVER BASIN BANK PROTECTION, OR.

Location. On Willamette River and tributaries, between Cascade Range and Coast Range, from a point south of Eugene to Portland, OR.

Existing project. Provides for clearing, sloping, and reveting riverbanks; construction of pile and timber bulkheads and drift barriers; minor channel improvements; and maintenance of existing works for control of floods and prevention of erosion at various locations along Willamette River and its tributaries. The current scope of the project is a total of 510,000 linear feet of bank protection at 236 locations. Estimated Federal cost is \$30,700,000.

Construction of project began in 1938 and is 96 percent complete. A total of 489,795 linear feet of bank protection work at 230 locations consisting of revetment of riverbanks, pile and timber bulkheads, drift barriers, and channel improvements, have been completed on Willamette River and tributaries.

Local cooperation. Section 3, Flood Control Act of 1936 and Section 103, Water Resources Development Act of 1986 applies. Estimated costs for all requirements of local cooperation under terms of project authorization were \$2,300,000.

Operations during fiscal year. No projects were Under construction during the FY.

34. WILLOW CREEK LAKE, HEPPNER, OR.

Location. On Willow Creek immediately upstream from Heppner and just downstream from junction of Balm Fork and Willow Creek in Section 35, Township 2 South, Range 26 East, Willamette Meridian.

Existing project. Project provides flood protection to the city of Heppner and downstream area by controlling runoff from a drainage area of 96 square miles. The dam is a roller compacted concrete structure 160 feet high at crest elevation 2,130. Ancillary features include a center uncontrolled spillway with a maximum flood capacity of 93,300 cfs (cubic feet per second), an outlet works with a capacity of 500 cfs, a minor flow works and diversion works. Gross storage capacity of the project is 13,250 acre-feet, consisting of 7,750 acre-feet for

exclusive flood control, 1,750 acre-feet for joint flood control and irrigation, 1,750 acre-feet exclusive irrigation, and 2,000 acre-feet dead storage for fish, wildlife, recreation, sediment accumulation, and aesthetics. Limited recreation facilities are being provided.

Willow Creek Parks and Recreation District has leased recreation facilities at Willow Creek Lake. A courtesy handling dock was constructed by the Recreation District utilizing Oregon State Marine Board funds. A playfield area below the dam has been leased to the City of Heppner.

The final Environmental Impact Statement was filed with the Environmental Protection Agency on December 20, 1979. The provisions of the Clear Water Act were met by a Section 404(b)(1) Evaluation and a public notice issued January 12, 1980, and a section 401 certification from the State of Oregon on February 15, 1980. Land acquisition is about 99 percent complete.

Local cooperation. Development of additional recreation facilities will require a local sponsor willing to cost share and assume all operation and maintenance of facilities.

Operations during fiscal year. Maintenance: Routine operation and maintenance performed.

35. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Funds appropriated for inspection of completed local flood protection works are used to determine maintenance condition of completed works, and to ascertain whether those works are properly maintained by local interests. Numerous leveed areas and bank protection works were inspected at various locations along both banks of Lower Columbia River below Bonneville Dam, along Oregon Coast, in eastern Oregon, in southern Oregon and in Willamette River Basin. A representative of sponsoring districts accompanied the Portland District representatives performing the levee inspections. Deficiencies in maintenance and need for repairs were discussed with sponsoring districts' representatives and a report was made to each sponsor with recommendations for improving maintenance. The program to improve maintenance of completed Federal projects initiated by House Appropriations Committee on Civil Functions was continued.

Performed aerial inspection of 186 revetments in the Willamette River Basin. A report was prepared detailing findings at each revetment. Letters detailing inspections findings were sent to each sponsor. Refer to Table 28-Q for information relating to completed works. Fiscal year costs were \$132,184.

36. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Corps of Engineers monitored flood control operations at four Bureau of Reclamation projects (Prineville, Ochoco, Emigrant, and Scoggins), one local project operated by Douglas County (Galesville), and one municipal power project operated by Tacoma City Light (Mossyrock). The projects were partially constructed with flood control funds, thereby subjecting project operation to monitoring by the Corps of Engineers under Section 7, Flood Control Act of 1944.

The four Bureau of Reclamation projects, Douglas County project and Mossyrock project were operated during the fiscal year within the flood control regulations specified for each project, with unusually low reservoir levels, due to the prevailing regional drought conditions. Total cost of monitoring and flood control direction of the six projects during the fiscal year was \$69,918

37. FLOOD CONTROL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Flood Control Activities Pursuant to Section 205 of the 1948 Flood Control Act, Public Law 858, 80th Congress, as Amended: In addition to general requirements, each project selected is limited to a federal statutory cost of not more than \$7,000,000. The local sponsor must agree to provide an amount not less than 35 percent or more than 50 percent of total project cost, at least 5 percent of which will be cash; and operate, maintain, repair, replace, and rehabilitate the project upon completion. One project was under construction as follows:

Keizer, OR

Location: The city of Keizer is located 40 miles south of Portland, Oregon and immediately north of Salem, Oregon, on the right bank of the Willamette River.

Project description: The city of Keizer constructed the Keizer Dike after the 1965 flood to protect the population from flooding of the Willamette River. The population has steadily grown to 31,000 in 2000. In 1995 the Federal Emergency Management Agency revised its flood insurance rate map of Keizer to include a large area of the city within the one-percent (100-year) floodplain. The reason for the revision was due to the low crest elevation of the dike and backwater from the Willamette River through a low swale. The close proximity of residential structures to the dike complicated solutions that would increase the level of protection. The authorized project included three components: 1) a concrete wall constructed inside the dike, which is called the riverwall, 2) an earthen embankment across the low swale and 3) four valves stormdrain pipes. The riverwall is 12 inches thick,

2,600 feet long and extends up to 18 inches above the existing dike crest. The downstream cross-dike is 220 feet long, 28 feet wide and two feet high. The right-of-way involved 26 property owners. The authorized project was based on an average annual cost of \$47,400 and average annual benefits of \$217,800 resulting in a 4.6 benefit-cost ratio. The project was constructed during the summer and fall 2000. The construction cost, including real estate, was \$700,000.

Local cooperation: The city of Keizer is the non-federal sponsor. They are responsible for providing lands, easements, rights-of-way, relocations and dredged disposal sites for the project. They are also responsible for operation and maintenance of the project. Due to the nature of the project, the annual operation and maintenance cost is anticipated to be minimal.

Operations during fiscal year: A construction contract was awarded on August 2, 2000 and was completed early in FY01.

Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress, as Amended:

In addition to general requirements, each project is limited to a federal statutory expenditure of not more than \$1,000,000 in any one year. The local sponsor must agree to provide an amount not less than 35 percent or more than 50 percent of total project cost at least 5 percent of which will be cash; and operate, maintain, repair, replace, and rehabilitate the project upon completion. One project was under construction during the fiscal year as follows:

Grants Pass, OR:

Location: The Bank Protection project is located on the right bank of the Rogue River near river mile 105 in the City of Grants Pass immediately downstream of the Redwood Avenue Bridge U.S. Route 199.

Project description: Recent erosion of the toe by river current has left a void under the river bank on which the city's only water filtration plant is located. The void was discovered by dive inspection and the City of Grants Pass enlisted an A/E firm to prepare plans and specifications. The erosion under the riverbank threatened to cause a failure of the slope, which could result in the closure of the filtration plant. The bank protection consisted of a sheet pile wall and fill to armor the toe and slope and concrete to repair the erosion. This repair also prevents additional erosion to the toe and slope in the area of the filtration plant. A landscape planted and seeded geocell slope will provide environmental restoration of the slope. The project extends for a distance of approximately 250 linear feet. The authorized

project was based on an average annual cost of \$124,400 and average annual benefits of \$233,700 resulting in a 2.88 benefit-cost ratio.

Local cooperation: The City of Grants Pass is the non-federal sponsor. They are responsible for providing lands, easements, rights-of-way relocations and dredged material sites for the project. They are also responsible for operation and maintenance of the project. A project cooperation agreement was signed on May 17, 2001.

Operations during fiscal year: A construction contract was awarded on June 13 2001 and will be completed in FY02.

Multiple-Purpose Projects, Including Power

38. BONNEVILLE LOCK AND DAM - LAKE BONNEVILLE, OR AND WA

Location. Project is on Columbia River, 40 miles east of Portland, OR, about 146 miles above mouth of river. For description of Columbia River, see Section 3.

Existing project. A dam, powerplant, and lock for power and navigation. Spillway dam extends across main channel from Cascade island shore to Bradford Island. Overflow crest at 24 feet above mean sea level is surmounted by 18 vertical-lift steel gates, 10 with remote control hoists placed between piers which extend to elevation 99 feet where a service roadway provides access, and two 350-ton gantry cranes for regulating gates. Powerhouse No. 1 extending across Bradford Slough to the Oregon shore has an installation of 10 units, consisting of one unit of 48,000 kilowatts, one unit of 59,500 kilowatts, and eight units of 60,000 kilowatts each, totaling 587,500 kilowatts. Ordinary and extreme fluctuations of river at lower lock gate are about 21 and 47 feet respectively. Project includes fish ladders to serve both main channel, Bradford Slough Channel, and Powerhouse II channel. Navigation lock and powerhouses are founded on andesite, and main dam rests on solidified sedimentary rock of volcanic origin. The pool created by dam provides a navigable channel 27 feet deep between Bonneville and The Dalles Dams, a distance of 47 river miles. Principal data concerning navigation lock, spillway dam, and powerplant are set forth in Table 28-N.

Dam, navigation lock, 10-unit power generating installation, fishways, and attendant buildings and grounds cost \$83,239,395, of which \$6,072,480 is for navigation facilities, \$39,350,824 for power facilities and \$37,816,091 for joint facilities, consisting of dam, fishways, buildings and grounds, and headwall

section of power units 0 to 6, cost of which \$2,106,000 is allocated to dam and lake facilities.

In response to flow regulations and peakings from upstream plants operating under conditions of Canadian storage and Pacific Northwest-Southwest Intertie, two modifications were undertaken at the Bonneville project. The modification for peaking project was undertaken to minimize adverse environmental effects under rapidly changing flow conditions from upstream dams. The project was completed in 1978 at a cost of \$27,195,000. The second modification provided for increased power installation by building a second powerhouse located on the Washington shore adjacent to the end of the existing spillway. The new powerhouse contains eight units of 66,500 kilowatts each and two fish attraction turbine generator units of 13,100 kilowatts each for a combined capacity of 558,200 kilowatts, bringing the entire Bonneville capacity to 1,145.7 megawatts. Additional fish facilities consist of the powerhouse collection system, second fish ladder on the Washington shore, transportation channel connecting the Cascade Island fish ladder with new exit control section, and fingerling bypass facilities which include fish screens in both the powerhouses. To provide for the anticipated increased visitor use, onsite visitor facilities are included. Under authority of the Bonneville Project Act (August 20, 1937), a letter from Bonneville Power Administration to North Pacific Division dated January 21, 1965, requested construction of a second powerhouse.

Construction of project started October 1933, was completed February 1943. Modification of powerhouse control equipment started March 1957, was completed September 1958. First two power units were placed in operation during fiscal year 1938. Powerhouse with complete installation of 10 units, was in operation December 1943.

Construction of modification for peaking work commenced in September 1970 and was completed in September 1978.

Construction of second powerhouse is complete. Final environmental impact statement was filed with Council on Environmental Quality in April 1972. In response to increasing visitation which now exceeds 800,000 a year at the dam site itself and 2,700,000 project wide, a visitor center with windows into the fish ladders, a 60-seat theatre, exhibits and displays was completed in 1975. Units 11 through 18 were on-line by October, 1982. The visitor facility for the new powerhouse (which does not require cost-sharing) is an integral part of that structure. The total cost for construction of the second powerhouse was \$678,945,000.

In June 1993 work began on the rehabilitation of the First Powerhouse. In the first phase the existing circuit breakers and ten transformers were replaced

and the switchyard was rehabilitated. Circuit breaker work was completed in 1995. The remaining work was completed in 1997. Phase I cost was \$24,120,000. The second phase consists of replacing the windings of six generators and replacing ten turbines. Second phase work was contracted in 1994 and is scheduled to complete in 2009. Phase II will cost an estimated \$110,800,000.

The first powerhouse, spillway, navigation lock and associated facilities have been designated as a National Historic District.

Development of recreation facilities at Home Valley was completed in FY 1989.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. None required, except for non-federal cost-sharing for development of recreational facilities.

Operations during fiscal year. New work: Real estate actions to provide access to Crates Point for State of Washington received State of Washington, Dept. of Ecology, concurrence that site monitoring for contamination is no longer necessary.

Maintenance: Routine operation and maintenance continued. Performed increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included rehabilitation of aging fish passage structures, removal of obstructions from the turbine environments, and an upgrade to the adult fishway automation system. Continued HTRW site investigation and risk assessment of Bradford Island landfill. Capital improvements included repair/replacement of the generic data acquisition and control system, excitors, main unit circuit breakers, and high voltage switches.

Major Rehabilitation: A contract to rehabilitate the generators and turbines in the first powerhouse is in progress. Two units have been rehabilitated to date. Completed bridge crane repair.

39. COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA

Location. This project provides for construction of 31 sites along the Columbia River on Bonneville pool, John Day pool, and The Dalles pool.

Existing project. Congress has provided authority through public law to implement a wide range of land management, transfer, acquisition and development actions to provide fishing access for Indian tribes who exercise treaty fishing rights on the Columbia River. The law designates certain federal sites on Bonneville, John Day, and The Dalles pools for fishing access. The improvements required at the access sites are specified in the authorizing legislation. They include all weather access roads,

camping facilities, boat ramps, docks, sanitation, and fish cleaning facilities. Construction of these facilities will greatly improve access by the four tribes, which have fishing rights along this reach of the Columbia River.

Local cooperation. None required.

Operations during fiscal year. New work: Work on plans and specifications for Phase II sites continued. Construction of the second phase sites continued. A total of 23 sites have been completed.

40. COUGAR LAKE, OR

Location. At mile 4.4 on South Fork McKenzie River which joins McKenzie River about 56.5 miles above its confluence with Willamette River. Project is about 42 miles east of Eugene, OR.

Existing project. A rockfill dam with an impervious earth core, about 1,738 feet long at crest and 445 feet high above the streambed. Reservoir is 6 miles long with storage capacity at full pool of 219,000 acre-feet and controls runoff of tributary drainage area of 210 square miles. Spillway is on right abutment and outlet and power tunnels in left abutment. Outlet tunnel is provided with a chute and stilling basin. Powerplant consists of two 12,500 kilowatt units with minimum provisions for installing a third unit of 35,000 kilowatts for future peaking capacity. Improvement functions as a unit in coordinated system of reservoirs for multiple-purpose development of water resources in Willamette River Basin. Recreation facilities are provided by the U.S. Forest Service. Also authorized (but unconstructed) is a reregulating dam, Strube Lake, below Cougar Lake, which would permit Cougar to operate as a peaking powerplant. The Strube dam would contain two units totalling 4,600 kilowatts. Estimated Federal cost of Strube Lake and Cougar Additional Units is \$114,000,000.

Construction of project initiated June 1956 is complete, excluding Strube Lake and Cougar Additional Unit for which planning is essentially complete. Also, plans and specifications for the first construction contract (relocations) have been completed. Generating units 1 and 2 were placed in commercial operation March 23 and February 4, 1964, respectively. Physical in-service date for flood control was November 29, 1963.

Freshets regulated by Cougar Lake on South Fork McKenzie River are shown on Table 28-K.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

The addition of water temperature control to the intake tower is authorized. Water temperature control will enhance fish passage and incubation in the

McKenzie River. Refer to the Willamette River Temperature Control project write-up for additional information.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Initiated remediation of hazardous materials discovered during construction of the temperature control structure. Capital improvements included repair/replacement of exciters and main unit circuit breakers.

41. DETROIT LAKE - BIG CLIFF, OR

Location. On North Santiam River with dam 50 miles from mouth 40 miles southeast of Salem, OR. North Santiam River flows north and west for 85 miles, and unites with South Santiam River to form Santiam River, which 10 miles downstream enters Willamette River 108 miles above its mouth.

Existing project. Main dam and a reregulating dam, both with power-generating facilities. Detroit Dam is a concrete gravity structure about 1,522 feet long and 454 feet high from lowest point of the general foundation to roadway deck. Spillway is a gate-controlled overflow section, and outlet works are gate-controlled conduits through dam. Powerhouse with two units having a capacity of 50,000 kilowatts each is in right abutment immediately below dam. Reservoir has a storage capacity at full pool of 454,900 acre-feet and controls runoff of tributary drainage area of 438 square miles. It is being operated as a unit in coordinated reservoir system to protect Willamette Valley from floods, to increase low water flows in interest of navigation and irrigation, to generate power, and for other purposes. Reregulating dam 3 miles downstream at Big Cliff site is concrete gravity type, about 191 feet high from lowest point of the general foundation to roadway deck. Power installation consists of one unit with a capacity of 18,000 kilowatts. Reservoir has a storage capacity of 5,930 acre-feet at full pool. Project is a unit of comprehensive plan for flood control and other purposes in Willamette Basin. Recreation facilities are provided by the U.S. Forest Service, Oregon State Park System and the town of Detroit.

Construction of project begun in May 1947 was completed December 1960. The two powerhouse generating units were placed in commercial operation June and October 1953. At Big Cliff powerhouse, single generating unit was placed on-line June 1954. Use of Big Cliff Dam for reregulating fluctuating flow from Detroit units was effected October 1953.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by the Detroit Lake project on North Santiam River are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit circuit breakers, governors, and remote control modifications.

42. GREEN PETER-FOSTER LAKES, OR

Location. At approximate mile 5.5 on Middle Santiam River which joins South Santiam River about 56.8 miles above its confluence with Willamette River. Dam is about 30 miles southeast of Albany in Linn County, OR.

Existing project. Main dam and a reregulating dam, both with power-generating facilities. Green Peter Dam is a concrete gravity structure, 1,400 feet long and 385 feet high above the lowest point of the general foundation with a gate-controlled spillway. Outlet works consist of two conduits through spillway, discharging into a stilling basin. Powerplant, on right bank adjacent to spillway stilling basin, consists of two units with an installed capacity of 80,000 kilowatts. Reservoir provides storage capacity at full pool of 430,000 acre-feet, extending 6.5 miles up Quartzville Creek and some 7.5 miles up Middle Santiam River above creek junction, forming a Y-shaped pool. Reservoir controls runoff of tributary drainage area of 277 square miles.

Foster Dam, 7 miles downstream from Green Peter Dam is located on South Santiam River about 38 miles above its confluence with Santiam River and 1.5 miles below its confluence with Middle Santiam River. Foster Dam consists of an earth, gravel, and rock-filled embankment, 146 feet high from lowest point of the general foundation and a concrete gravity gate controlled spillway and stilling basin for a total length of 4,800 feet. Power installation consists of two units with capacity of 20,000 kilowatts. Foster Lake has a storage capacity, at full pool, of 61,000 acre-feet. Project functions as a unit in coordinated system of reservoirs for multiple-purpose development of water resources in Willamette River Basin.

All construction on Green Peter-Foster Lakes project initiated June 1961 is completed. Green Peter Lake was placed in operation for useful flood control June 1967 as a unit of coordinated reservoir system for protection of the Willamette River Basin. First power-generation unit was placed on the line June 9, 1967 and second, June 28, 1967. Use of Foster Lake for reregulating fluctuating flows from Green Peter units was effective December 1967. First power generation unit was placed on-line August 22, 1968 and second, September 6, 1968.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by Green Peter Lake project on Middle Santiam River are shown in Table 28-K.

Local cooperation. Future recreation development at Foster or Green Peter will require cost sharing. Recreation facilities at Foster Lake includes 4 parks and 2 parks at Green Peter Lake. Five of these parks were developed by the Corps and are operated by Linn county under lease agreement. One park is operated by the Corps.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Replaced Foster service building roof. Repaired Green Peter station service unit. Capital improvements included repair/replacement of main unit circuit breakers, exciters, and transformers.

43. HILLS CREEK LAKE, OR

Location. On the Middle Fork, Willamette River, 47.8 miles from mouth and 26.5 miles upstream from Lookout Point Dam. Middle Fork, Willamette River rises on west slope of Cascade Range and flows northwesterly to its junction with Coast Fork, Willamette River. Dam is about 45 miles southeast from Eugene, OR.

Existing project. An earth-and-gravel-fill dam about 2,150 feet long at the crest and 338 feet above lowest point of the general foundation. A gate-controlled concrete gravity chute-type spillway is in right abutment. Diversion tunnel, outlet tunnel and power tunnel are in same abutment. Powerhouse with two 15,000 kilowatt units is located next to spillway. Hills Creek Lake is about 8.5 miles long and provides storage capacity at full pool of 356,000 acre-feet. Project controls runoff of drainage area of 389 square miles and is an integral unit of comprehensive plan for development of water resources of Willamette River Basin. Hills Creek Lake and Lookout Point Lake are operated as a unit for control of floods and generation of power on Middle Fork Willamette River. These projects, in conjunction with Dexter reregulating dam and Fall Creek Lake flood control system, will effectively control floods on Middle Fork and provide maximum efficient generation of hydroelectric power. Recreation facilities are provided by the U.S. Forest Service. Hills Creek power units are remote controlled from Lookout Point.

Construction of project, initiated May 1956, was completed June 1963. The project was placed in service for useful flood control in November 1961. On May 2, 1962, the two power units were placed on-line.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Freshets regulated by Hills Creek Lake on Middle Fork Willamette River are shown in Table 28-K.

Local cooperation. None required.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Capital improvements included repair/replacement of main unit circuit breakers and exciters.

44. JOHN DAY LOCK AND DAM – LAKE UMATILLA, OR AND WA

Location. On Columbia River about 3 miles downstream from mouth of John Day River and about 215 miles above mouth of Columbia River.

Existing project. A dam, powerplant, navigation lock, fish ladders, and appurtenant facilities with a slack-water lake about 75 miles long extending to McNary Lock and Dam. Included is relocation of railroads, highways, utilities, and communities affected by the impoundment. The project as originally authorized would have provided 2,000,000 acre-feet of flood control storage. As modified, the project provides 500,000 acre-feet of flood control storage between elevations 257 and 268. The structure is 5,900 feet in length and stands about 161 feet above streambed. Powerhouse has space for 20 generating units of 135,000 kilowatts each; 16 units have been installed for a present capacity of 2,160,000 kilowatts. Principal project data are set forth in Table 28-N.

A detailed description of project as authorized and modified is on pages 1992 and 1993 of Annual Report for 1962 under the Walla Walla District.

Construction began July 1958 and the project was opened to navigation April 1968. The main dam contract is complete. Lock rehabilitation work begun in FY 1980 was completed in FY 1986.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. Recreation facilities at 5 parks are operated and maintained by local agencies under lease agreement with the Corps. Six developed recreation areas are operated and maintained by the Corps of Engineers. Any future recreation development will require cost sharing.

Operations during fiscal year. Maintenance: Increased activities to protect and enhance the anadromous fisheries in the Northwest. These activities included removal of obstructions from turbine environments, rehabilitation of the adult auxiliary water pumps, and improvements to the debris removal system in the smolt monitoring facility. Initiated major repairs on the navigation

lock. Upgraded Bonneville Hatchery Battery A&B Ponds. Repaired Spring Creek Hatchery filter bed gate. Capital improvements included repair/replacement of exciters, generic data acquisition and control system, and powerhouse emergency battery system.

45. LOOKOUT POINT - DEXTER LAKES, OR

Location. On Middle Fork, Willamette River at Meridian site, 21.3 miles from mouth. Middle Fork, Willamette River, rises in Lane County on western slope of Cascade Range and flows northwesterly to its junction with Coast Fork, which is head of mainstem Willamette River. Dam is about 22 miles southeast from Eugene, OR.

Existing project. A main dam at Meridian site and a reregulating dam 3 miles downstream at Dexter site. Both dams are earth-and-gravel-fills with concrete spillways and have power generating facilities. Main dam is 258 feet high from lowest point of the general foundation to deck and is 3,381 feet long at crest forming a reservoir 14.2 miles long providing storage of 456,000 acre-feet at full-pool level. Reservoir controls runoff of tributary drainage area of 991 square miles. Spillway, 274 feet long, is a gate-controlled overflow type, forming right abutment. Outlet works consisting of slide-gate-controlled conduits pass through spillway section. Powerhouse has three main generating units with a capacity of 120,000 kilowatts. Dexter reregulating dam has a maximum height of 107 feet above lowest point of the general foundation and is 2,765 feet long at crest, forming a full pool of 27,500 acre-feet extending upstream to main dam and providing pondage to regulate Lookout Point powerhouse water releases to a uniform discharge. Spillway consists of a gate-controlled overflow section 509 feet long forming right abutment.

Flow regulation is accomplished by use of spillway gates and releases through powerhouse, which contains one 15,000-kilowatt unit. Lookout Point and Dexter Lakes are operated as a single unit of a coordinated system of reservoirs to protect Willamette River Valley against floods, to provide needed hydroelectric power, and to increase low water flows for navigation, irrigation, and other purposes. Existing project authorized as a unit of comprehensive plan for flood control and other purposes in Willamette River Basin.

Construction of project initiated May 1947 was completed June 1961, except for construction of additional recreation facilities funded through the Code 710 program. Future recreation facilities will be provided in accordance with the cost-sharing contract with Lane County and will require a 50 percent contribution by Lane County and is subject to funding availability by the Government and the

County. At Lookout Point powerhouse, generating units 1,2, and 3 were placed in commercial operation December 1954, February 1955, and April 1955, respectively. At Dexter powerhouse the single unit was placed on-line May 1955. Dexter was placed in operation for reregulation in December 1954.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration

Freshets regulated by Lookout Point Lake project on Middle Fork Willamette River are shown in Table 28-K.

Local cooperation. A multiple project cost sharing agreement has been in force with Lane County since September 1976. It includes 4 projects and 13 parks. All these parks are managed by Lane County under lease agreement. Recreation opportunities are provided at 2 parks on Dexter Lake which are operated by Lane County via the multi-project cost-sharing agreement and lease instruments. The north shore of Lookout Point Lake is also leased to Lane County for recreation purposes; there is essentially no development. Future development will require a supplement to the cost sharing agreement.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

46. LOST CREEK LAKE, ROGUE RIVER BASIN, OR

Location. On Upper Rogue River at mile 153.6 about 30 miles northeasterly from Medford, OR.

Existing project. A rock and gravel-fill embankment dam about 327 feet high from streambed to crest, with an overall length of 3,750 feet with an impervious earth core and a gate-controlled concrete spillway. Powerhouse is on right abutment and houses two Francis-type turbines with installed capacity of 24,500 kilowatts each. Regulating outlet facility was provisions for temperature regulation for releases in interest of fishery enhancement is also on right bank. Reservoir 10 miles long provides 315,000 acre-feet of usable storage. Project provides control of runoff of drainage area of 674 square miles. In addition to hydroelectric power generation, project provides flood control, irrigation, future municipal and industrial (M&I) water supply, fish and wildlife enhancement, water quality control and recreation benefits.

Construction of project initiated July 1967 is complete. Generating units 1 and 2 were placed in commercial operation July 6 and July 13, 1977, respectively. Physical in-service date for flood control was February 18, 1977. Final environmental statement was filed with Council on Environmental Quality in June 1972. Recreation opportunities are provided by 4 parks at the project. The State of

Oregon operates 2 parks, including a 200-unit campground, part of Stewart State Park.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration

Freshets regulated by Lost Creek Lake on Rogue River are shown in Table 28-K.

Local cooperation. Authorizing act required that local agencies furnish assurances prior to construction that demands will be made for future use of water supply storage within a period that will permit repayment of costs, including interest, allocated to water supply within life of the project; that State of Oregon take action, prior to construction to insure maintenance in stream of flows to be released for fishery; in addition, costs allocated to irrigation would have to be repaid in manner and to an extent consistent with reclamation laws and policies; and costs allocated to power will be repaid on a system basis by revenue from sales of power in Pacific Northwest Federal system by Bonneville Power Administration. A survey in September, 1980 of M&I water supply needs showed nine communities with water supply needs. A contract for M&I supply has been completed with one of the communities. Assurances for municipal and industrial water supply were obtained from six communities in Rogue River Valley.

On February 26, 1966 Oregon State Department of Fish and Wildlife agreed to operate Cole M. Rivers Fish Hatchery for mitigation and enhancement of fish. The Corps provides full funding for the operation and maintenance of the hatchery. The hatchery became operational in 1972.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued.

47. THE DALLES LOCK AND DAM - LAKE CELILO, WA AND OR

Location. On Columbia River at head of pool behind Bonneville Dam, about 192 miles above mouth of river and 88 miles east of Portland, OR.

Existing project. A dam, powerplant, navigation lock, and appurtenant facilities. Improvement provides for navigation and hydroelectric power generation. Dam is designed for a normal pool at elevation 160 feet at mean sea level. Normal pool forms a reservoir extending upstream about 23 miles providing slackwater to John Day Dam site. The Dalles Dam is 8,700 feet long and consists of a rock, gravel, and sand river closure section from Oregon shore connecting to a nonoverflow section which in turn joins powerhouse, then concrete nonoverflow sections connecting spillway with powerhouse and spillway with navigation lock at right abutment on Washington shore. Fish-passing facilities including two ladders and a fish lock are provided. Powerhouse

was constructed for 14 units initially with substructure for eight additional units, an ultimate total of 22 units. Initial installation, excluding two 13,500 kilowatt fish-water units, is 1,092,000 kilowatts. With eight units installed for a capacity of 687,800 kilowatts. The total generating capacity is 1,806,800 kilowatts. Structures are founded on Columbia River basalt.

Principal data concerning lock, spillway, and powerhouse are set forth in Table 28-N.

Major construction of project initiated February 1952, was completed October 1960 when unit No. 14 was placed in commercial operation. Initial contract for additional units 15-22 was awarded in September 1967. Additional 8-unit phase was completed when unit 22 was placed in commercial operation in November 1973.

Basic recreation facilities were developed with construction funds at 4 parks on Lake Celilo. These parks were further expanded with code 710 funds in the late 60's and early 70's. Two parks are operated by Washington State Park Commission under a lease agreement.

Studies for adding power generation facilities to the North Shore Fish Ladder Auxiliary Water supply System were initiated in October 1979 and completed in December 1980. These facilities would provide baseload generation (3.5 megawatts) and would not impact the present operation of the North Fish Ladder. However, it was determined that it was not within the Chief of Engineer's authority to add these power facilities. A local interest, North Wasco County Public Utility District pursued the construction of these power facilities through the FERC license processes and awarded a construction contract in September 1989.

Seufert Visitor Center was completed in September 1980.

In October 1996 work began on major rehabilitation of powerhouse units 1-14. Work includes rewind of nine generators, replacement of blades on twelve turbine units, refurbishment of blades on two turbine units, and refurbishment of two bridge cranes. The total cost for major rehabilitation is estimated at \$101,000,000 with completion in September 2010.

Electrical power generation for the fiscal year is shown on Table 28-P. Net power generated is marketed by Bonneville Power Administration.

Local cooperation. Further recreation development will require cost sharing and assumption of operation and maintenance by local, non-federal sponsor.

Operations during fiscal year. Maintenance: Routine operation and maintenance continued. Performed increased activities to protect and enhance

the anadromous fisheries in the Northwest. These activities included removal of obstructions from the turbine environment, repair of fishway entrance gates, and procurement of one-piece bulkheads. Replaced diffusion water gratings at the north fish ladder. Replaced station service generator #1 exciter. Capital improvements included repair/replacement of the generic data acquisition and control system, main unit circuit breakers, and powerhouse emergency battery system.

Major Rehabilitation: Continued generator rewind and exciter installation, initiated turbine efficiency testing, awarded roller gate contract, and procured an additional stator core.

Environmental

48. COLUMBIA RIVER FISH MITIGATION, OR AND WA

Location. At Bonneville, The Dalles, and John Day Dams on the Columbia River in the states of Oregon and Washington. This project encompasses work at five other locations within Walla Walla District.

Existing project. The eight Corps hydroelectric projects on the lower Columbia and Snake Rivers have been identified as a major contributing factor in causing mortality to migrating salmon and steelhead. Without adequate bypass facilities to guide juvenile fish away from the power turbines at the dams, mortalities incurred through project passage severely impact the commercial, recreational, and Indian fisheries. The Corps has recognized the need to reduce juvenile mortality and has undertaken bypass measures that include mechanized fish bypass systems with barge and truck transportation. Spill as an additional bypass route over the spillways has been used to divert fish from entering turbine units, but it is a significant adverse economic factor due to lost power revenues. Congress passed and the President signed the FY 1989 Energy and Water Development Appropriations Act (PL 100-371) which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River Juvenile Fish Mitigation projects. Completion of the bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile fish. The mitigation study will determine the overall scope of the juvenile and adult fish bypass facilities for these Columbia and Snake River dams.

The plan of improvement within Portland District includes the following: (a) Bonneville - new juvenile fish monitoring facilities, bypass system improvements and outfall relocation; (b) The Dalles - enhanced sluiceway guidance and spillway improvements, new gantry crane and maintenance facility; (c) John Day - new juvenile fish monitoring

facility, flow deflectors, bypass system improvements (d) a mitigation study that analyzes long-term alternatives including impacts of federal Columbia River system and other activities on estuary habitat, surface bypass technology, gas abatement and improved turbine passage to improve fish passage and survival through Corps dams on the Columbia and Snake Rivers.

The current fully funded total estimated Federal project cost is \$1,516,000,000 which includes improvements in Walla Walla District, and in Portland District and \$9,783,000 provided by the Bonneville Power Administration for design of the Bonneville juvenile fish monitoring facility. For information on the planned improvements in the upper Columbia and Snake Rivers, see Walla Walla District's Annual Report.

Local cooperation. None required.

Operations during fiscal year. New work: General: Continued to collect biological and hydraulic data at all projects, and develop alternatives to improve existing anadromous fish bypass methodology and systems, to reduce excess dissolved gas entrainment associated with use of the spillways and to improve turbine passage survival.

Bonneville Dam: Completed construction of the juvenile fish bypass maintenance facility at the second powerhouse. Completed bio evaluation of the surface collection facility and extended length screen prototype at the first powerhouse. Completed design for the juvenile fish bypass improvements at the first powerhouse. Initiated design of surface bypass (corner collector) system at the second powerhouse.

The Dalles Dam: Continued sluiceway and spillway juvenile survival studies in conjunction with development of future bypass system alternatives. Continued design for relocating sluiceway outfall and for provision of emergency auxiliary water for adult fishways. Completed design of the adult south fish ladder channel dewatering facility. Initiated evaluations of spillway improvement.

John Day Dam: Continued testing of extended length (40 ft.) bypass screens for potential replacement of existing 20 ft. screens associated with the existing juvenile bypass system. Completed design of spillway weir bypass prototype.

49. WILLAMETTE RIVER TEMPERATURE CONTROL, OR

Location. At the Blue River and Cougar Lake projects in the McKenzie River sub-basin of the Willamette River basin in western Oregon.

Project Description. Work consists of retrofitting the intake tower structures with movable weir intakes to allow modification of water temperatures downstream from the Blue River and Cougar

projects. Water temperatures are currently cooler in the spring/summer and warmer in the fall/winter than pre-project conditions. This has impacted the fish resources in the McKenzie sub-basin, especially Willamette spring Chinook salmon and bull trout, both species of national and regional significance.

The total project is estimated to cost \$72,000,000.

Local cooperation. None required.

Operations during fiscal year. New York: Continue work on diversion tunnel and gate. The design of the intake tower progress through 90%.

50. ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Modifications to Structures and Operations of Constructed Corps Projects to Improve the Quality of the Environment, Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as Amended. This program provides the authority to modify existing civil works projects to restore the environment. A non-federal entity is required to sponsor the project. The project must accomplish restoration by modifying a Corps project or operation of a Corps project, or be located on Corps project lands. The project must be feasible and consistent with the authorized purpose. The non-federal sponsor generally must assume responsibility of the operation and maintenance associated with the project.

Planning studies, detailed design, and construction costs are shared by the Corps 75 percent and non-federal sponsor 25 percent. Total project costs cannot exceed \$6.7 million with the federal share limited to \$5,000,000 without specific congressional authorization.

See Table 28-L for expenditures under Section 1135 during the fiscal year.

Four projects were under construction as follows:

Clatskanie River, OR

Location: Near the mouth of Beaver Slough, at the head of Westport Slough, a side channel of the lower Columbia River. The site is two miles west of the town of Clatskanie, and about 70 road miles northwest of Portland, Oregon.

Project description: The project entails reconnecting Westport Slough to Beaver Slough by placing a large 8-ft x 12-ft corrugated steel culvert through the levee plug. The interchange of water, increased flows, and increased circulation will improve fish habitat and water quality in Westport Slough and reestablish a crucial link for fish migration to spawning and rearing areas.

Reestablishing the connection between the Westport Slough and Beaver Slough will also allow recreational boating access for canoes and kayaks. The area will also be planted with native vegetation.

Local cooperation: Columbia Soil and Water Conservation District, in cooperation with the Lower Columbia Watershed Council, signed a project cooperation agreement on July 25, 2000. The project was funded by a combination of sources including the Oregon Watershed Enhancement Board, the Washington Department of Ecology Coastal Protection Fund and the Lower Columbia River Estuary Program.

Operations during fiscal year: Construction was completed on the culvert in September 2000. The project area was planted with native vegetation in FY01.

Fern Ridge Marsh, OR

Location: This project modification is located at the Fern Ridge Lake project on the Long Tom River, a tributary of the Willamette River approximately 6 miles west of Eugene, Oregon.

Project description: The Fern Ridge Marsh Restoration Project entails marsh restoration and management actions on 347 acres in the western portion of the Fisher Butte Management Unit (West Fisher Butte sub-unit) at Fern Ridge Lake Project. The restoration will restore and provide for management of 347 acres of marsh habitat via construction of 7 water control structures, 15,900 lineal feet of dikes and rock dikes (carp excluders) within the drawdown zone of Fern Ridge Lake Project. The general intent of the proposed action is the restoration of a more diverse and productive marsh plant and wildlife community in areas currently dominated by reed canarygrass. This species is an exotic plant found in extensive stands in shallow water areas around the reservoir perimeter. The total project cost, including lands, is estimated at approximately \$540,000.

Local cooperation: The Oregon Department of Fish and Wildlife signed a local cooperation agreement for the project on July 19, 1999.

Operations during fiscal year: Construction continued from FY00. The levees and fish excluders were completed. The barr of reed canary grass was not accomplished. Alternate method to control reed canary grass will be accomplished in FY 02.

Fox Creek, OR

Location: This project is located in the city of Rainier, Oregon at the mouth of Fox Creek. Fox Creek enters the Columbia River at river mile 67+20.

Project description: The Fox Creek project modifies a dredged material disposal site associated

with the Federal Navigation Channel. Flows from Fox Creek were routed through a 72-inch culvert during routine O&M maintenance dredge material disposal actions in 1985. Dredged material was then placed over the culvert. The project modification consists of excavating the dredged material from the former streambed (approximately 535 feet) and restoration of the creek to its approximate former course and gradient. Additionally, reed canary grass was removed over approximately 200 feet of the existing stream channel upstream of the dredged material disposal site. Native riparian trees will be planted along the entire length of the project.

Local Cooperation: The City of Rainier signed a Project Cooperation Agreement on 16 August 2001.

Operations during fiscal Year: A construction contract was awarded 26 September 2001, with most of the construction scheduled for first quarter of FY02

Lower Amazon Creek Wetlands Restoration, OR

Location: This project modification is located along Amazon Creek at the western edge of the city of Eugene, Oregon. Amazon Creek is a major drainage channel for Eugene, conveying flows into the Long Tom River, a tributary of the Willamette River.

Project description: Prior to settlement in the 1850's, seasonal wet prairie habitat dominated the landscape of the lower Amazon Creek basin and much of the Willamette Valley. Since then, nearly all of this wetland type has been lost to agriculture and urban uses. The Amazon Creek Flood control Project built by the Corps in the 1950's further degraded the wetland hydrology when the creek and connecting drainages were channelized and lined with levees. It is estimated that less than one percent of the Willamette Valley's historic wet prairies remains today. The lower Amazon Creek Wetlands Project will restore the historic hydrology and vegetation community to almost 400 acres of wet prairie. All of the land within the project area is owned by the City of Eugene and BLM, having been acquired for wetland protection and restoration purposes. The total project cost, including lands and recreation facilities, is estimated at approximately \$6.2 million.

Phase I involved removing existing levees along Amazon Creek and associated drainages and restoring the channels more natural meandering stream configurations. New levees were set back around the margin of the wetland restoration area to maintain the flood control function of the project. Interior wetland areas will now be subject to the high frequency flooding that occurred prior the flood

control project. The new levees were seeded with a combination of native upland grass species. A slotted weir was constructed to maintain the complex flow relationship between the connected channels. Culverts, some gated, will also be installed to maintain drainage and to allow manipulation of surface hydrology for wetland management purposes. Disturbed areas along the stream channels and the old levee footprints will be seeded and planted with native wet prairie, emergent marsh and vernal pool species. The total cost for this completed in 1999 was \$2.0 million.

Phase II involves removal of non-native plant materials on about 120 acres of wetlands and replacement with native wet prairie plants. A major portion of this effort has been the collection and propagation of native plants and seeds. Phase II also includes modification of surface hydrology through filling and restoration of old agricultural drainage channels draining into Amazon Creek. Phase II was initiated in 2000 and will continue through 2002.

Phase III construction of recreation facilities will occur in Summer 2002. Facilities will include access points, viewing structures, interpretive displays and trails.

Local cooperation: The City of Eugene signed a Project Cooperation Agreement (PCA) for the project on October 26, 1998. The project is also supported by the Bureau of Land Management under its West Eugene Wetlands Project. In 1999 the City of Eugene requested that the agreement be modified to include the addition of recreation facilities in accordance with recent Corps guidance. The modified PCA is scheduled to be signed in Spring 2001.

Operations during fiscal year: Phase I was completed in November 1999. Initiated construction of Phase II.

Restoration and Protection of Aquatic Ecosystems to Improve the Quality of the Environment, Pursuant to Section 206 of the Water Resources Development Act of 1996, Public Law 303, 104th Congress, as Amended. In addition to general requirements, each project is limited to a Federal statutory expenditure of not more than \$5,000,000 per year. The non-Federal share of the costs shall be 35 percent, however, the entire non-Federal share of the total project cost may be credited work-in-kind.

See Table 28-L for expenditures under Section 206 during the fiscal year.

No projects were under construction during the FY.

General Investigations

51. SURVEYS

Fiscal year costs were \$1,568,069 of which \$861,476 was for Special Studies, \$2,409 for comprehensive studies, \$470,212 for miscellaneous activities, and \$233,972 for coordination with other agencies. Contributed funds in the amount of \$412,029 were expended, of which \$5,551 was contributed by the State of Oregon for the Willamette River Basin Review study, \$32,223 was returned to the City of Portland Bureau of Environmental Services for the Columbia Slough Ecosystem Restoration Study, \$317,305 was contributed by Tillamook County for the Tillamook Ecosystem Restoration Study, and \$121,396 was contributed for the Planning Assistance to States Program.

52. COLLECTION AND STUDY OF BASIC DATA

Flood Plain Management Services. Flood Plain Management Services Program comes under Section 206 of the 1960 Flood Control Act, PL 86-645, as amended. Through technical services and planning guidance, the program encourages comprehensive flood plain management planning at all levels to reduce the potential for losses to life and property from floods. Federal and non-Federal agencies and the private sector are assisted with planning and development information for flood hazard areas. This assistance is in the form of local flood plain regulations, Federal Insurance Program requirements, and Executive Order 11988 guidelines. Such assistance may include factual flood information (available or determined) and interpretation on flood frequencies, extent of flooding, flood-water velocity, duration of flooding and floodway limits.

Fiscal year costs totaling \$175,725 were associated with the following tasks under the Flood Plain Management Services Program: FPMS Unit \$46,908; Technical Services \$67,480 Quick Responses \$8,090; National Flood Proof Committee \$4,405; and special studies \$48,842

Hydrologic Studies. Crest stage gages were constructed and installed on streams in an ongoing program to record data from flood events. Fiscal year costs were \$8,546 to build 80 gages.

53. PRECONSTRUCTION ENGINEERING AND DESIGN

Columbia River Channel Improvements Study, OR & WA

The project plan consists of deepening a segment of the Columbia and Willamette Rivers by 3 feet to 43 feet. The project area begins at the mouth of the Columbia River and extends upstream to the vicinity of the Port of Vancouver, Washington (approximately river mile 105), and also includes the Lower Willamette River from its confluence with the Columbia River (river mile 101.5) upstream to the

vicinity of downtown Portland (approximately river mile 11). Project cost sharing will include requirements for non-Federal interests to pay 25 percent of the project cost during construction, and an additional 10 percent to be repaid over a period not exceeding 30 years. Cost of construction is estimated at \$188,319,000.

Fiscal year expenditures were \$121,300 Federal funds and \$280,554 contributed funds.

Other

54. FLOOD CONTROL AND COASTAL EMERGENCIES

Disaster Preparedness Program. This program encompasses all activities associated with preparing, responding to and recovering from natural disasters. It also provides for man-caused disaster planning. It includes publishing plans and procedures, establishing and training response teams, exercising plans and teams, and coordinating with Federal, state and local agencies. This program maintains response supplies and equipment used to supplement state and local requests for assistance. Significant activities for 2001: recruitment and training of some 20 new response personnel for Flood Response and Debris Management Teams and staff participation in Northwestern Division wide flood and catastrophic earthquake exercises. Continued presenting Flood Fight Design workshops, with an emphasis on involving public works and engineering officials at the local and state level. Oregon Emergency Management Association and American Public Works Association provided venues for this outreach.

Public Law 84-99 Response. FY 2001 was a dry and mild year. There were no floods within NWP area of operation that required Corps assistance. Drought conditions did not lead to requests for emergency potable water for human consumption. Monthly Oregon Drought Council meetings were attended. Public information fairs were provided in the Klamath Basin.

Public Law 93-288 - Assistance to FEMA. An Emergency Support Function #3, Public Works and Engineering, Alternate Team Leader, with two Debris Team Members and a GIS expert were dispatched to the State of Washington following the February 2001 Nisqually Earthquake. Then in September, three logistics experts, four Debris Team Members and a Rapid Response Vehicle Team member were dispatched to New York City to assist with the recovery effort following the World Trade Center terrorist attack.

Continuing Eligibility Inspections. The district completed all scheduled inspections of Federal and non-Federal Flood Control Works. The Willamette

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River Bank Protection Program, shifted its comprehensive inspection program to selecting site inspections which would lead to identifying Endangered Species Act salmon habitat protection criteria. Guidelines will be developed which lead the inspector to determine what should be done with damaged revetments; repair, no action or remove.

Catastrophic Disaster Response Planning.
Command and Control of Northwestern Division's

Catastrophic Disaster Response Plan for a Cascadia Earthquake was evaluated with a Table Top Exercise in July 2001. The exercise development team was lead by NWP's CDPP Project Manager. He also moderated the highly successful Division wide event. See Table 28-M for expenditures during the fiscal year.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 28-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep 30, 2001
1.	Bonneville Navigation Lock, Bonneville Dam, OR and WA (Federal Funds) (Inland Waterway Trust Fund)	New Work Approp. Cost	17,500 34,063	3,000 7,985	-- 926	-7,500 2,517	175,442,307 ⁵⁰ 175,441,813 ⁵⁰
		New Work Contrib. Cost	17,500 30,558	4,693,885 4,700,058	-- 4,186	-7,500 2,043	180,132,885 180,132,861
2.	Chetco River, OR	New Work Approp. Cost					2,043,713 ¹ 2,043,713 ¹
		Maint. Approp. Cost	426,000 432,929	443,000 443,781	424,000 423,401	520,065 520,428	11,184,738 11,183,966
3.	Columbia and Lower Willamette Rivers Below Vancouver, WA and Portland, OR (Federal Funds)	New Work Approp. Cost					28,349,304 ² 28,349,304 ²
		Maint. Approp. Cost	14,280,550 14,105,152	16,136,000 18,209,097	18,265,000 18,228,597	18,336,413 17,071,417	443,140,259 ³ 441,814,956 ³
	(Contributed Funds)	New Work Contrib. Cost					665,954 ⁴ 665,954 ⁴
4.	Columbia River at Baker Bay, WA	New Work Approp. Cost					941,252 941,252
		Maint. Approp. Cost	4,000 4,646	14,000 13,784	1,071,000 1,070,716	2,994 2,997	5,748,081 5,747,454
5.	Columbia River Between Chinook, WA, and Head of Sand Island	New Work Approp. Cost					220,283 ⁵ 220,283 ⁵
		Maint Approp. Cost	4,000 7,733	286,000 285,994	741,000 741,561	5,987 5,991	8,657,864 8,657,678
6.	Columbia River at The Mouth, OR and WA	New Work Approp. Cost					24,913,661 ⁶ 24,913,661 ⁶
		Maint. Approp. Cost	6,325,000 6,307,009	6,361,500 6,381,320	7,133,000 7,113,210	6,829,081 6,817,980	180,164,434 ⁷ 180,133,149 ⁷
		Major Rehab. Approp Cost					7,322,878 7,322,878
7.	Columbia River Between Vancouver, WA and The Dalles, OR	New Work Approp. Cost					5,989,509 ⁸ 5,989,509 ⁸
		Maint Approp. Cost	657,000 657,103	290,000 290,041	578,000 570,010	674,232 683,886	16,447,591 ⁹ 16,447,332 ⁹
8.	Columbia River Channel Improvements, OR (Federal Funds) (Contributed Funds)	New Work Approp. Cost				2,530,000 851,228	2,530,000 851,228
		New Work Contrib Cost	--- ---	--- ---	--- ---	300,000 224,259	300,000 224,259

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TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep 30, 2001
9.	Coos Bay, OR (Federal Funds)	New Work Approp. Cost	849,000 24,288	--- 868,554	--- ---	--- ---	37,866,092 ¹⁰ 37,866,092 ¹⁰
		Maint. Approp. Cost	3,181,000 3,182,478	5,678,200 5,666,808	4,647,000 4,649,648	3,634,089 3,646,226	122,870,007 ¹¹ 122,868,779 ¹¹
		Major Rehab Approp. Cost					2,335,966 2,335,966
	(Contributed Funds)	New Work Contrib. Cost	637,000 47,439	-- 471,853	--- 49,739	--- 5,933	3,986,680 3,917,729
10.	Coquille River, OR	New Work Approp. Cost					693,366 ¹² 693,366 ¹²
		Maint. Approp. Cost	127,000 130,912	224,000 224,184	133,000 130,982	256,320 257,705	9,344,307 ¹³ 9,343,562 ¹³
11.	Depoe Bay, OR	New Work Approp. Cost					367,364 367,364
		Maint. Approp. Cost	32,000 30,512	10,000 12,741	233,000 231,484	362,219 119,624	2,352,936 2,108,349
12.	Port Orford, OR	New Work Approp. Cost					758,692 ¹⁴ 758,692 ¹⁴
		Maint. Approp. Cost	509,000 511,626	767,000 768,999	446,000 430,018	553,490 551,345	8,180,707 8,160,078
13.	Rogue River Harbor At Gold Beach, OR	New Work Approp. Cost					4,156,252 ¹⁵ 4,156,252 ¹⁵
		Maint. Approp. Cost	1,072,000 993,486	87,000 165,547	557,000 563,828	793,622 794,022	20,637,016 ¹⁶ 20,636,104 ¹⁶
		Major Rehab Approp. Cost					635,783 635,783
14.	Siuslaw River, OR (Federal Funds)	New Work Approp. Cost					29,502,212 ¹⁷ 29,502,212 ¹⁷
		Maint. Approp. Cost	283,000 279,350	262,000 267,734	297,000 291,933	572,232 575,993	18,131,616 ¹⁸ 18,130,265 ¹⁸
		Major Rehab Approp. Cost					879,285 879,285
	(Contributed Funds)	New Work Contrib. Cost					493,611 493,611
15.	Skipanon Channel, OR	New Work Approp. Cost					280,854 280,854
		Maint. Approp. Cost	189,000 189,237	159,000 159,623	1,273,000 1,272,419	21,622 21,729	5,437,686 5,436,993

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 28-A (Cont'd)		COST AND FINANCIAL STATEMENT					
See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep 30, 2001
16.	Tillamook Bay and Bar, OR	New Work Approp. Cost					22,434,827 ¹⁹ 22,434,827 ¹⁹
		Maint. Approp. Cost	5,000 8,807	21,000 21,804	297,000 292,250	68,682 73,715	7,171,764 ²⁰ 7,171,427 ²⁰
		Major Rehab. Approp. Cost					2,839,799 2,839,799
17.	Umpqua River, OR	New Work Approp. Cost					17,718,877 ²¹ 17,718,877 ²¹
		Maint. Approp. Cost	1,392,000 1,393,683	977,000 976,853	716,000 707,546	698,944 705,899	36,020,037 36,062,987
		Major Rehab. Approp. Cost					2,500,677 2,500,677
18.	Willamette River at Willamette Falls, OR	New Work Approp. Cost					520,005 ²² 520,005 ²²
		Maint. Approp. Cost	690,000 865,491	487,200 498,267	552,000 553,632	1,334,346 1,336,313	26,226,364 ²³ 26,225,207 ²³
		Minor Rehab Approp. Cost					234,794 234,794
19.	Yaquina Bay and Harbor, OR	New Work Approp. Cost					19,242,046 ²⁴ 19,242,046 ²⁴
		Maint Approp. Cost	2,268,000 2,259,405	6,410,000 6,420,500	644,650 639,447	8,681,023 8,685,547	59,907,431 ²⁵ 59,905,665 ²⁵
		Major Rehab. Approp. Cost					12,005 12,005
20.	Yaquina River, OR	New Work Approp. Cost					28,800 28,800
		Maint Approp. Cost	-67,000 -65,116	--- ---	--- 913	--- ---	1,463,694 ⁵¹ 1,463,694 ⁵¹
24.	Applegate Lake, Rogue River Basin OR	New Work Approp. Cost					91,642,489 91,642,489
		Maint. Approp. Cost	769,000 755,008	807,000 818,099	837,800 825,496	804,392 796,192	11,973,307 ⁴⁸ 11,943,218 ⁴⁸
25.	Blue River Lake, OR	New Work Approp. Cost					32,038,225 ²⁶ 32,038,225 ²⁶
		Maint. Approp. Cost	251,000 246,491	215,000 220,207	192,000 201,315	284,286 282,333	5,154,585 ⁵³ 5,151,560 ⁵³

PORTLAND, OREGON DISTRICT

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep 30, 2001
26.	Cottage Grove Lake, OR	New Work Approp. Cost					4,013,123 ²⁷ 4,013,123 ²⁷
		Maint. Approp. Cost	696,000 680,606	819,000 828,078	941,000 959,180	984,024 973,314	19,004,312 ²⁸ 18,990,367 ²⁸
27.	Dorena Lake, OR	New Work Approp. Cost					14,568,262 ²⁹ 14,568,262 ²⁹
		Maint. Approp. Cost	935,000 893,215	653,000 700,441	562,200 570,537	636,753 627,887	12,658,413 ⁵⁵ 12,646,086 ⁵⁵
28.	Elk Creek Lake, Rogue River Basin, OR	New Work Approp. Cost	74,000 887,209	302,000 495,882	454,000 413,224	486,000 632,808	110,339,579 110,315,798
29.	Fall Creek Lake, OR	New Work Approp. Cost					22,118,264 ³⁰ 22,118,264 ³⁰
		Maint. Approp. Cost	1,175,000 1,131,573	432,000 467,066	583,200 595,746	634,669 620,967	12,191,540 12,176,824
30.	Fern Ridge Lake, OR (Federal Funds)	New Work Approp. Cost					8,685,635 ³¹ 8,685,635 ³¹
		Maint. Approp. Cost	1,210,000 1,165,721	807,700 856,142	1,054,000 1,060,382	1,248,254 1,238,638	25,794,152 ³² 25,780,842 ³²
	(Contributed Funds)	New Work Contrib. Cost					52,666 52,666
31.	Lower Columbia River Basin Bank Protection, OR & WA (Federal Funds) (Contributed Funds)	New Work Approp. Cost	-10,000 28,260	---	322,000 9,624	95,000 348,554	21,619,745 21,550,422
		New Work Contrib. Cost	10,200 0	0 0	104,250 6,635	3,000 107,999	117,450 114,634
32.	Mt. St. Helens Sediment Control, WA (Federal Funds) (Contributed Funds)	New Work Approp. Cost	34,000 57,549	300,000 243,182	840,000 707,866	619,000 787,199	113,487,000 113,465,106
		New Work Contrib. Cost					3,703,112 3,703,112
		Maint. Approp. Cost	308,000 311,026	281,100 304,912	227,000 224,989	234,329 234,554	4,734,429 4,732,115
33.	Willamette River Basin Bank Protection, OR	New Work Approp. Cost	-10,000 7,227	---	---	20,000 7,008	24,991,816 ³³ 24,978,333 ³³
		Maint. Approp. Cost	181,000 198,469	355,000 351,834	209,000 120,425	77,387 167,451	5,985,096 5,983,253

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 28-A (Cont'd)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep 30, 2001
34.	Willow Creek Lake, OR	New Work Approp. Cost					37,260,114 37,260,114
		Maint. Approp. Cost	530,000 512,150	555,000 581,009	608,000 607,151	617,611 557,682	8,634,662 8,567,279
38.	Bonneville Lock and Dam - Lake Bonneville OR and WA	New Work Approp. Cost	70,000 96,720	32,396 50,475	-659 8,972	--- -188	789,836,341 ³⁴ 789,836,153 ³⁴
		Maint. Approp. Cost	16,114,000 15,637,786	16,604,100 17,009,763	17,814,100 17,744,149	19,290,560 18,959,801	353,060,423 ³⁵ 352,326,246 ³⁵
		Major Rehab. Approp. Cost	10,960,000 11,092,955	13,238,604 12,870,401	16,864,731 15,281,432	8,208,000 10,193,680	85,362,335 85,228,296
39.	Columbia River Treaty Fishing Access Sites, OR & WA	New Work Approp. Cost	7,460,079 6,520,182	7,774,442 8,797,936	6,717,000 6,466,146	7,775,498 8,416,757	38,193,019 38,111,930
40.	Cougar Lake, OR	New Work Approp. Cost					58,636,393 ³⁶ 58,636,393 ³⁶
		Maint. Approp. Cost	1,272,000 1,217,890	1,366,200 1,416,843	1,027,400 1,055,993	1,614,484 1,605,927	26,415,280 ⁴⁹ 26,404,203 ⁴⁹
41.	Detroit Lake - Big Cliff, OR	New Work Approp. Cost					62,729,698 62,729,698
		Maint. Approp. Cost	2,537,000 2,406,655	2,538,200 2,660,104	2,600,000 2,637,380	2,819,555 2,732,293	53,768,362 ⁴⁷ 53,673,977 ⁴⁷
		Minor Rehab Approp. Cost					363,086 363,086
42.	Green Peter-Foster Lakes, OR	New Work Approp. Cost					84,005,788 ³⁷ 84,005,788 ³⁷
		Maint. Approp. Cost	2,683,000 2,643,533	2,929,600 2,953,897	3,154,800 3,170,392	3,295,742 3,295,016	56,213,845 ³⁸ 56,179,556 ³⁸
43.	Hills Creek Lake, OR	New Work Approp. Cost					45,700,619 45,700,619
		Maint. Approp. Cost	743,000 728,183	901,900 914,229	808,100 811,394	832,123 826,210	17,388,498 ³⁹ 17,379,770 ³⁹
44.	John Day Lock and Dam - Lake Umatilla, OR and WA	New Work Approp. Cost					512,400,246 ⁴⁰ 512,400,246 ⁴⁰
		Maint. Approp. Cost	12,427,000 12,196,731	13,386,500 13,530,020	15,485,150 14,710,742	16,979,308 17,186,555	265,748,685 ⁴¹ 265,007,386 ⁴¹
		Major Rehab. Approp. Cost	--- 889,761	--- 4,463	--- ---	--- ---	44,005,128 ⁵⁴ 44,005,128 ⁵⁴

PORTLAND, OREGON DISTRICT

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep 30, 2001
45.	Lookout Point - Dexter Lakes, OR	New Work Approp. Cost					88,238,395 ⁴² 88,238,395 ⁴²
		Maint. Approp. Cost	4,663,000 5,257,357	4,402,500 4,747,792	4,245,000 4,276,796	4,773,721 4,738,797	96,330,753 ⁴³ 96,261,752 ⁴³
46.	Lost Creek Lake, Rogue River Basin, OR	New Work Approp. Cost					136,408,150 136,408,150
		Maint Approp. Cost	3,988,000 3,820,931	3,910,300 4,050,722	4,254,100 4,228,512	4,089,723 4,114,768	68,569,741 ⁴⁴ 68,519,436 ⁴⁴
47.	The Dalles Lock and Dam - Lake Celilo, WA and OR	New Work Approp. Cost					303,260,288 ⁴⁵ 303,260,288 ⁴⁵
		Maint. Approp. Cost	11,728,000 11,614,994	12,323,000 12,508,235	12,538,500 12,313,384	13,629,620 13,418,117	239,819,790 ⁴⁶ 239,298,680 ⁴⁶
		Major Rehab. Approp. Cost	4,637,000 4,297,713	5,560,000 5,741,481	4,272,000 4,171,644	8,806,000 9,187,001	25,168,000 25,139,176
48.	Columbia River Fish Mitigation, OR and WA	New Work Approp. Cost	57,719,000 58,545,415	58,749,000 49,673,014	31,625,000 39,759,406	39,511,000 42,673,523	295,581,000 ⁵² 295,111,525 ⁵²
49.	Willamette River Temperature Control, OR	New Work Approp. Cost			3,181,000 2,227,934	10,396,000 10,810,587	13,577,000 13,038,521

Footnotes:

1. Excludes \$17,742 contributed funds for new work.
2. Includes \$1,529,413 for previous project.
3. Includes \$150,955 allotted from deferred maintenance funds, Code 700, \$62,296 for public works accelerated program repair, and \$1,214,865 for previous project. Excludes \$24,320 expended from contributed funds prior to 1964.
4. Excludes \$31,636 contributed by city of Astoria and Bumble Bee Sea Foods, Astoria, OR (not part of regular project). Includes \$223,026 expended from contributed funds prior to 1964 and \$428,136 contributed by Port of Portland and \$14,792 by Port of Vancouver.
5. Includes \$84,930 rehabilitation funds.
6. Includes \$1,986,253 for previous project and \$608,111 allotted and expended under Code 710, recreation facilities at completed project. Excludes \$500,000 contributed funds.
7. Includes \$2,186,000 for previous project and \$1,188,625 under deferred maintenance, Code 700.
8. Includes funds under Code 721 (small authorized projects) \$30,393. Entrance to Oregon slough; \$161,897, Camas-Washougal Turning Basin; \$227,908, Hood River Small Boat Basin; \$157,470, Bingen, WA, Barge Channel; and \$140,619, The Dalles Small Boat Basin.
9. Includes \$2,033,408 under code 700 (Deferred Maintenance).
10. Includes \$802,096 for previous project. Excludes contributed funds.
11. Includes \$178,801 for previous project and \$1,444,640 under Code 700, Deferred Maintenance. Excludes \$8,387 contributed funds.
12. Includes \$340,726 for previous project. Excludes \$72,891 contributed funds. Includes \$36,000 under Code 711.
13. Includes \$41,467 for previous project and \$78,500 under Code 700, Deferred Maintenance.
14. Excludes \$9,900 contributed funds.
15. Excludes \$13,779 (other funds) contributed for additional landfill and extension of drainage lines.
16. Includes \$21,000, Wedderburn Study Funds.
17. Includes \$1,159,357 for previous project.
18. Includes \$10,611 for previous project and \$188,000 under code 700, Deferred Maintenance.
19. Includes \$77,209 for previous project and \$57,767 under Code 720 (Small Authorized Projects) Garibaldi Boat Basin. Excludes \$592,622 contributed funds and \$300,000 channel dredging by local interest.
20. Includes \$71,498 for previous project. Excludes \$6,450 expended from contributed funds.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 2001

TABLE 28-A (Cont'd) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY98	FY99	FY00	FY01	Total Cost to Sep.30, 2001
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Footnotes (Cont'd)

21. Includes \$39,242 for previous project. Excludes \$6,450 expended from contributed funds.
22. Excludes \$300,000 contributed funds.
23. Includes \$452,110 on operation and care from permanent indefinite appropriation and \$150,000 under maintenance and operation of dams and other improvements of navigable waters.
24. Includes \$707,313 for previous project and \$170,000 appropriated from public works acceleration program for north jetty rehabilitation.
25. Includes \$6,026 for previous project.
26. Includes \$96,000 pro rata share of site selection costs in lieu of Quartz Creek Lake.
27. Includes \$1,639,828 allotted and expended under Code 710, recreation facilities at completed project.
28. Includes \$167,878 special recreation use fees. Includes \$201,262 under maintenance and operation of dams and other improvements to navigable waters.
29. Includes \$1,038,790 allotted and expended under Code 710, recreation facilities at completed project.
30. Includes \$1,026,264 allotted and expended under Code 710, recreation facilities at completed project.
31. Includes \$3,894,673 allotted and expended under Code 710, recreation facilities at completed project and \$136,482 allotted under 721 (small authorized project) reservoir modification. Excludes \$2,100 (other funds contributed).
32. Includes \$9,750 allotted under Code 700, deferred maintenance. Includes \$241,678 under maintenance and operation of dams and other improvements to navigable waters.
33. Excludes \$93,733 contributed funds.
34. Includes \$12,200,000 Public Works Administration funds, \$20,240,700 National Recover Act Funds, \$27,195,400 modification for peaking funds, \$136,457 Code 710, recreation facilities at completed project funds and \$6,000 power units funds.
35. Includes \$540,000 deferred maintenance funds, Code 700 and \$1,692,148 maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
36. Includes \$96,000 pro rata share of site selection costs in lieu of Quartz Creek Lake. Includes \$1,789,988 allotted and \$1,789,954 expended for Strube Lake and Cougar Additional Unit.
37. Includes \$113,000 pro rata share of site selection costs in lieu of Quartz Creek Lake.
38. Includes \$983,934 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
39. Includes \$82,408 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
40. Includes \$25,984 allotted and expended under 710, recreation facilities at completed projects.
41. Includes \$1,361,900 for O&M and fish evaluation of Spring Creek Hatchery (funds revoked and paid to USFWS at OCE level, but a cost to project); includes \$423,800 special recreation use fees. Includes \$933,438 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
42. Includes \$457,611 allotted and expended under 710, recreation facilities at completed projects.
43. Includes \$991,562 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
44. Includes \$978,478 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
45. Includes \$1,140,747 allotted and expended under 710, recreation facilities at completed projects, and \$52,997,220 allotted and expended additional units 15 - 22 funds.
46. Includes \$721,490 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
47. Includes \$936,376 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
48. Includes \$66,678 under maintenance and operation of dams and other improvements of navigable waters.
49. Includes \$861,852 under maintenance and operation of dams and other improvements of navigable waters. Excludes 96-89X4045 funds.
50. Includes \$24,307 under code 422 General Investigation.
51. Excludes \$3,000 contributed funds.
52. Excludes 96-89X4045 funds.
53. Includes \$90,694 under maintenance and operation of dams and other improvements of navigable waters.
54. Excludes 96-89X4045 funds.
55. Includes \$150,000 under maintenance and operation of dams and other improvements of navigable waters.

TABLE 28-B AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.		BONNEVILLE NAVIGATION LOCK, BONNEVILLE DAM, OR AND WA	
	Aug 15, 1985	Construction of a new navigation lock just south of existing lock.	P.L. 99-88
	Nov 17, 1986	Construction to be funded 50% from fuel taxes paid into Inland Waterways Trust Fund.	P.L. 99-662
2.		CHETCO RIVER, OR	
	Mar 02, 1945	To provide for the stabilization of the channel, by constructing jetties and dredging.	H. Doc. 817, 77 th Cong., 2d Sess
	Oct 27, 1965	Modification of channel entrance and channel improvements.	S. Doc. 21, 89 th Cong., 1st Sess.
	Dec 04, 1981	Deepen channel 2 feet to 16 feet, extend the existing jetty S. system 750 feet for the North, and 1,250 feet for the South jetty.	Doc. 10, 96th Cong., 1st Sess.
	Oct 31, 1992	Assume responsibility for O&M of the approximately 200-foot-long access channel to the south commercial boat basin consistent with authorized project depths.	P.L. 102-580, 102nd Cong.
3.		COLUMBIA AND LOWER WILLAMETTE RIVERS BELOW VANCOUVER, WA AND PORTLAND, OR	
	Feb 27, 1911	2 pipeline dredges and accessories.	H. Doc. 1278, 61st Cong., 3d Sess. ¹
	Jul 25, 1912	Increasing main channel to 30 feet.	H. Doc. 1278, 61st Cong., 3d Sess. ¹
	Jul 27, 1916	Consolidating improvement below Portland, OR and between Vancouver, WA and mouth of Willamette.	No Prior Report
	Aug 08, 1917	For the Cathlamet channel.	H. Doc. 120, 63d Cong., 1st Sess. ¹
	Sep 22, 1922	Construct an additional dredge (dredge was not built) and accessories for better maintenance, and construct contraction works.	H. Doc. 1009, 66th Cong., 3d Sess.
	Mar 04, 1923 ²	Channel from deep water in Willamette Slough to deep water in Columbia River.	H. Doc. 156, 67th Cong., 2d Sess.
	Mar 03, 1925	Depth of 25 feet and width of 300 feet from mouth of Willamette River to Vancouver, WA.	H. Doc 126, 68th Cong., 1st Sess.
	Mar 03, 1927	Closing east channel at Swan Island in Willamette River on condition that main channel to be opened to project dimensions on west side of island by Port of Portland.	Rivers and Harbors Committee Doc. 10 69th Cong., 2d Sess.
	Jul 03, 1930	For a 35-foot channel 500 feet wide from Portland to the sea.	H. Doc. 195, 70th Cong., 1st Sess. and Rivers and Harbors Committee Doc. 8, 71st Cong., 1st Sess. ¹
	Sep 06, 1933 ³	A channel 28 feet deep and 300 feet wide from mouth of Willamette River to Vancouver, with 2 turning basins, each generally 28 feet deep by 800 feet wide by 2,000 feet long.	H. Doc. 249, 72d Cong., 2d Sess. ¹
	Aug 30, 1935	A channel in Columbia River from mouth of Willamette to interstate highway bridge at Vancouver, WA, 30 feet deep and 300 feet wide, with 2 turning basins at Vancouver.	Rivers and Harbors Committee Doc. 1, 74th Cong., 1st Sess.
	Aug 30, 1935	Maintenance of not to exceed 35 foot depth at low water in Portland Harbor and Willamette River between its mouth and Broadway Bridge at Portland.	Rivers and Harbors Committee Doc. 6, 73d Cong., 1st Sess. ¹

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Aug 30, 1935	Auxiliary channels, 30 feet deep, 300 feet and 500 feet at St. Helens.	H. Doc. 235, 72d Cong., 1st Sess. ¹
	Aug 26, 1937	Extension of lower turning basin at Vancouver, WA, 1,000 feet downstream.	Rivers and Harbors Committee, Doc. 81, 74th Cong., 2d Sess.
	Aug 26, 1937	An auxiliary channel 24 feet deep and 200 feet wide along waterfront at Rainier, OR.	H. Doc. 203, 75th Cong., 1st Sess. ¹
	Mar 02, 1945	Improvement of old mouth of Cowlitz River.	H. Doc. 341, 77th Cong., 1st Sess. ¹
	Mar 02, 1945	An auxiliary channel in vicinity of Longview, WA.	H. Doc. 630, 77th Cong., 2d Sess. ¹
	Jul 24, 1946	A small-boat mooring basin at Astoria, OR.	H. Doc. 692, 79th Cong., 2d Sess. ¹
	Oct 23, 1962	A channel 35 feet deep and 500 feet wide from mouth of Willamette River to interstate highway bridge at Vancouver, WA, with 2 turning basins of same depth.	H. Doc. 203, 87th Cong., 1st Sess.
	Oct 23, 1962	A channel 40 feet deep and 600 feet wide from at Vancouver, WA, to mouth of Columbia River; a turning basin Vancouver, WA, a turning basin at Longview, WA, and a channel 40 feet deep in Willamette River from mouth to Broadway Bridge which encompasses Portland Harbor area.	H. Doc. 452, 87th Cong., 2d Sess. ¹
4.		COLUMBIA RIVER AT BAKERBAY, WA	
	Dec 11, 1933	East Channel	Public Works Administration
	Aug 30, 1935	Main channel	H. Doc. 44, 73d Cong., 1st Sess.
	Mar 02, 1945	West channel 8 feet deep.	H. Doc. 443, 76th Cong., 1st Sess.
	May 17, 1950	West channel 10 feet deep and mooring basin with protecting breakwaters.	S. Doc. 95, 81st Cong., 1st Sess.
5.		COLUMBIA RIVER BETWEEN CHINOOK, WA AND HEAD OF SAND ISLAND	
	Jun 20, 1938	Channel 8 feet deep. Doc. 50, 75th Cong., 2d Sess.	Rivers and Harbors Committee
	Sep 03, 1954	Channel 10 feet deep and mooring basin.	S. Doc. 8, 83d Cong., 1st Sess. ¹
6.		COLUMBIA RIVER AT THE MOUTH, OR AND WA	
	Mar 03, 1905	Extend South Jetty and construct North Jetty and dredging.	H. Doc. 94, 56th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944 as amended
	Sep 03, 1954	Bar channel of 48-foot depth and spur jetty on north shore. ⁹	H. Doc. 249, 83d Cong., 2d Sess. ¹
	Jul 30, 1983	Deepening the northernmost 2,000 feet of the channel cross section to 55 feet.	P.L. 98-63
	May 24, 1995	Lower a 500' section of south jetty at river mile 7.	Sec. 1135, P.L. 99-662, as amended

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
7.		COLUMBIA RIVER BETWEEN VANCOUVER, WA, AND THE DALLES, OR	
	Aug 26, 1937	Construct a channel 27 feet deep by 300 feet from Vancouver, WA, to Bonneville, OR.	H. Committee Doc. 94, 74th Cong., 2d Sess. ¹
	Mar 02, 1945	Construct Camas-Washougal turning basin.	H. Doc. 218, 76th Cong., 1st Sess.
	Jul 24, 1946	Construct a channel 27 feet deep by 300 feet wide from Bonneville, OR, to The Dalles, OR.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct a boat basin at Hood River, OR, 10 feet deep, 500 feet wide, by 1,300 feet long.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct a barge channel at Bingen, WA, 10 feet deep, 200 feet wide, by 1 mile long, and an access channel 7 feet deep, 100 feet wide, by 1,000 feet long to natural mooring basin.	H. Doc. 704, 79th Cong., 2d Sess.
	Jul 24, 1946	Construct The Dalles Harbor 8 feet deep, 400 feet wide by 800 feet long.	S. Doc. 89, 79th Cong., 1st Sess. ¹
8.		COLUMBIA RIVER CHANNEL IMPROVEMENTS, OR	
	Aug 17, 1999	Deepen the existing navigation channel by three feet.	P.L. 106-53
9.		COOS BAY, OR	
	Jun 25, 1910	Dredging the Ocean Bar Channel.	H. Doc. 958, 60th Cong., 1st Sess.
	Mar 02, 1919	A channel 22 feet deep to Smith's Mill.	H. Doc. 325, 65th Cong., 1st Sess.
	Sep 22, 1922	Restore North Jetty 9,600 feet long, construct a South Jetty about 3,900 feet long, extend 22-foot bay channel from Smith's Mill to Millington.	H. Doc. 150, 67th Cong., 2d Sess.
	Jan 21, 1927	Extend jetties to such lengths as may be practicable within estimate of total cost of jetties, \$3,250,000 given in H. Doc. 150, 67th Cong.	H. Doc. 320, 69th Cong., 1st Sess.
	Jul 03, 1930	A channel 24 feet deep and 300 feet wide, through Pigeon Point Reef, following a location along westerly side of bay.	H. Doc. 110, 70th Cong., 1st Sess. ¹
	Aug 30, 1935	For 24-foot channel from Pigeon Point Reef to Smith's Mill and a turning basin above Marshfield.	S. Committee Print, 73d Cong., 2d Sess. ¹
	Jul 24, 1946	Increased dimensions of channel across bar and to Isthmus Slough and turning basin opposite Coalbank Slough and at city of North Bend; anchorage basins at mile 3.5 and near mile 7.	S. Doc. 253, 79th Cong., 2d Sess.
	Jun 30, 1948 Dec 31, 1970	A mooring basin and connecting channel at Charleston. Increase dimensions to provide for bar channel 45 feet deep, inner channel 35 feet deep to mile 15, and deepening and widening existing turning basins and anchorage area.	H. Doc 646, 80th Cong., 2nd Sess. H. Doc. 151, 91st Cong., 2d Sess.
	Nov 13, 1995	Deepening the authorized channel by 2 feet and expanding one turningbasin. The entrance would be 47 feet deep to River Mile (RM) 1 and the inner channel 37 feet between RM 1 and 15.	P.L. 104-46

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
10.		COQUILLE RIVER, OR	
	Jun 25, 1910	Dredging shoals between mouth and Riverton, and removing obstruction between mouth of North Fork and Bandon.	H. Doc. 673, 61st Cong., 2d Sess.
	Mar 02, 1919	For a 13-foot channel from ocean to Bandon.	H. Doc. 207, 65th Cong., 1st Sess. ¹
	Jul 03, 1930	Deepen channel to 16 feet between sea and eastern end of North Jetty.	H. Doc. 186, 70th Cong., 1st Sess.
	Aug 30, 1935	Present project depth between sea and eastern end of North Jetty.	S. Committee Print, 74th Cong., 1st Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Food Control Act of 1944 as amended
	Mar 02, 1945	For 13-foot depth from sea to a point 1 mile above Coquille River Lighthouse and snagging to State Highway Bridge.	H. Doc. 672, 76th Cong., 2d Sess. ¹
11.		DEPOE BAY, OR	
	Aug 26, 1937	Construction of an inner basin 375 feet long, 125 feet wide and 5 feet deep, with an entrance channel of same depth and 30 feet wide.	H. Doc. 202, 75th Cong. 1st Sess.
	Mar 2, 1945	Construction of an inner basin 750 feet long, 390 feet wide and 8 feet deep, with entrance channel at same depth and 30 feet wide.	H. Doc. 350, 77th Cong. 1st Sess.
	July 14, 1960	Construction of entrance channel 8 feet deep and approved 50 feet wide, concrete breakwater and stone spending beach	Sec. 107 of R&H Act 1960, Feb. 1965.
12.		PORT ORFORD, OR	
	Oct 27, 1965	Extension of existing breakwater by 550 feet.	S. Doc. 62, 88th Cong., 2d Sess
	Dec 31, 1970	Dredging of turning basin 340 feet long, 100 feet wide, 16 feet deep.	H. Doc 151, 91st Cong., 2d Sess.
	Oct 31, 1992	Maintain the authorized navigation channel including those portions of the channel within 50 feet of the port facility.	P.L. 102-580, 102nd Cong.
13.		ROGUE RIVER HARBOR AT GOLD BEACH, OR	
	Sep 03, 1954	Two jetties at entrance and improvement of channel.	S. Doc. 83, 83d Cong. 2d Sess.
14.		SIUSLAW RIVER, OR	
	Sep 19, 1890	Build two high-tide stone jetties.	H. Doc. 71, 51st Cong., 1st Sess.
	Jun 25, 1910	Extends North Jetty 3,700 feet from old work constructed under previous project and provides for 4,200 foot south jetty.	H. Doc. 648, 61st Cong., 2d Sess.
	Mar 03, 1925	12-foot deep channel.	S. Committee Print, Serial, 68th Cong., 1st Sess.
	Jul 03, 1958	18-foot bar channel and 16-foot river channel and a 600-foot extension of north Jetty. (600-foot extension classified deferred.)	H. Doc. 204, 85th Cong., 1st Sess. ¹
	Oct 22, 1976	Phase I advance engineering and design for north and south jetty extensions.	Final Report of Chief of Engineers
	Oct 01, 1980	Extending north and south jetties about 2,000 and 2,500 feet, respectively.	P.L. 96-367

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
15.		SKIPANON CHANNEL, OR	
	Jul 03, 1930	Channel from deep water in Columbia River to railroad bridge, 30 feet deep.	H. Doc. 278, 70th Cong., 1st Sess. ¹
	Aug 26, 1937	Channel extending upstream from railroad bridge a distance of 4,500 feet.	H. Doc. 201, 75th Cong., 1st Sess.
	Jun 30, 1948	Mooring basin 12 feet deep at Warrenton.	S. Doc. 93, 80th Cong., 1st Sess. ¹
16.		TILLAMOOK BAY AND BAR, OR	
	Jul 26, 1912	Construct North Jetty 5,700 feet long and dredging	H. Doc. 349, 62d Cong., 2d Sess.
	Mar 04, 1913	channel 16 feet deep, 200 feet wide, to Bay City.	
	Mar 02, 1919	Abandon that portion of project above Bay City.	H. Doc. 760, 65th Cong., 2d Sess
	Mar 03, 1925	Abandon Bay City Channel and present project x (600-foot extension classified of channels and turning basins with regulating works as needed.	H. Doc. 562, 68th Cong., 2d Sess.
	Mar 02, 1945	Repair damage and check erosion on Bayocean Peninsula caused by storm Jan. 1939.	S. Doc. 35, 79th Cong., 1st Sess. ⁴
	Jun 30, 1948	Dredging small-boat basin and approach at Garibaldi, OR , to depth of 12 feet.	H. Doc. 650, 80th Cong., 1st Sess.
	Sep 03, 1954	Closure of breach in Bayocean Peninsula.	S. Doc. 128, 83d Cong., 2d Sess. ¹
	Oct 27, 1965	Construct South Jetty, 8,000 feet long.	S. Doc. 43, 89th Cong., 1st Sess. ¹
17.		UMPQUA RIVER, OR	
	Sep 22, 1922	North Jetty, 7,500 feet long	H. Doc. 913, 65th Cong., 2d Sess.
	Jan 21, 1927	Present project dimensions of North Jetty and dredging ocean bar.	H. Doc. 320, 69th Cong., 1st Sess.
	Jul 03, 1930	A short south jetty	H. Doc. 317, 70th Cong., 1st Sess. ¹
	Aug 30, 1935	A full length south jetty and maintenance dredging to a 26-foot depth.	Rivers and Harbors Committee Doc. 9,72d Cong., 1st Sess.
	Jun 20, 1938	Channel 22 feet deep and 200 feet wide from mouth to Reedsport.	S. Doc. 158, 75th Cong.,3d Sess. ¹
	Mar 02, 1945	Channel 22 feet deep and 200 feet wide from river channel to Gardiner, and turning basin 22 feet deep, 500 feet wide and 800 feet long.	S. Doc. 86,76th Cong., 1st Sess. ¹
	Mar 02, 1945	Channel 10 feet deep and 100 feet wide from river channel to dock in Winchester Bay with mooring and turning basin 10 feet deep, 175 feet wide , and 300 feet long at inner end.	S. Doc. 191, 77th Cong., 2d Sess. ¹
	Jun 30, 1948	Channel 12 feet deep and 100 feet wide from river channel to dock in Winchester Bay with mooring and turning basin 12 feet deep, 175 feet wide, and 300 feet long at inner end.	S. Doc. 154, 80th Cong., 2d Sess. ¹
	Sep 03, 1954	Channel 12 feet deep, Scholfield River. ⁵	S. Doc. 133, 81st Cong., 2d Sess. ¹
18.		WILLAMETTE RIVER AT WILLAMETTE FALLS, OR	
	Jun 25, 1910	For purchase and rehabilitation of system and construction of concrete division wall.	H. Doc. 202, 56th Cong., 1st Sess. and Annual Report, 1900, P. 4374
	Aug 08, 1917	Deepening of locks.	H. Doc. 1060, 62d Cong., 3d Sess. ¹
	Jun 26, 1934 ⁶	Operation and care of canal and locks provided for with funds from War Department appropriations for Rivers and Harbors.	
	Mar 02, 1945 ⁸	Construction of New Willamette Falls Locks.	H. Doc. 544, 75th Cong.,3d Sess.

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
19.		YAQUINA BAY AND HARBOR, OR	
	Mar 02, 1919	Restoration and extension of jetties constructed under previous projects, rock removal at entrance, and dredging in bay up to railroad terminus at Yaquina.	H. Doc. 109, 65th Cong., 1st Sess.
	Aug 26, 1937	Extension of north jetty seaward 1,000 feet.	S. Committee Print, 75th Cong., 1st Sess.
	Mar 02, 1945	26-foot channel of suitable width across entrance bar, as far as rock bottom will allow, a 20-foot channel 300 feet wide along south side of bay to and including a turning basin 22 feet deep, 1,000 feet wide and 1,200 feet long.	S. Doc. 119, 77th Cong., 1st Sess. ¹
	Jul 24, 1946	Construct a small-boat mooring basin at Newport, OR.	S. Doc. 246, 79th Cong., 2d Sess.
	Jul 03, 1958	40-foot bar channel and 30-foot river channel extension of jetties at entrance.	S. Doc. 8, 85th Cong., 1st Sess. ¹
	Jul 14, 1960	A small boat basin, south shore.	Section 107, P.L. 86-645 Authorized by Chief of Engineers, Mar. 4, 1977
20.		YAQUINA RIVER, OR	
	Mar 4, 1913	Construction of channel 10 feet deep and generally 150 feet wide on Yaquina River and 200 feet wide in Depot Creek.	Doc. 579, 62d Cong., 2d Sess.
24.		APPLEGATE LAKE, ROGUE RIVER BASIN, OR	
	Oct 23, 1962	Authorizes a rockfill embankment dam.	H. Doc. 566, 87th Cong., 2d Sess.
	Mar 07, 1974	Authorizes construction of project but no operation for irrigation until local interests agree to repay cost allocated.	P.L. 93-251
25.		BLUE RIVER LAKE, OR	
	May 17, 1950	Authorizes gravel-filled embankment dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Nov 17, 1986	Authorizes Construction of hydroelectric power facilities	P.L. 99-662
26.		COTTAGE GROVE LAKE, OR	
	Jun 28, 1938	Earthfill dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended 25.
27.		DORENA LAKE, OR	
	Jun 28, 1938	Earthfill dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
28.		ELK CREEK LAKE, ROGUE RIVER BASIN, OR	
	Oct 23, 1962	Roller compacted concrete dam.	H. Doc. 566, 87th Cong., 2d Sess.
	Oct 07, 1970	Authorized construction but not operation for irrigation until local interests agree to repay cost allocated.	P.L. 91-439

TABLE 28-B (Cont'd)

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
29.		FALL CREEK LAKE, OR	
	May 17, 1950	Earth and gravel fill embankment dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
30.		FERN RIDGE LAKE, OR	
	Jun 28, 1938	Earthfill embankment dam	H. Doc. 544, 75th Cong. 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Oct 23, 1962	Raise height of dam to obtain additional storage.	H. Doc 403, 87th Cong. 2d Sess.
	Jun 4, 1993	Construction of waterfowl impoundments.	Sec 1135, P.L.99-662 as amended
31.		LOWER COLUMBIA RIVER BASIN BANK PROTECTION, OR AND WA	
	May 17, 1950	Provides bank protection on Columbia River below river mile 125 and along principal tributaries.	H. Doc. 531, 81st Cong., 2d Sess.
32.		MT. ST. HELENS SEDIMENT CONTROL, WA	
	Aug 15, 1985	Authorized construction of sediment and retention structures.	P.L. 99-88
33.		WILLAMETTE RIVER BASIN BANK PROTECTION, OR	
	Jun 22, 1936	Bank protection works, with channel clearing.	F.C. Act 1936
	Jun 28, 1938	Provide additional protection against flooding.	H. Doc. 544, 75th Cong., 3d Sess.
	May 17, 1950	Addition of 77 locations to scope of projects.	H. Doc. 531, 81st Cong., 2d Sess.
34.		WILLOW CREEK LAKE, HEPPNER, OR	
	Oct 27, 1965	Storage project for flood control, recreation, and fish and wildlife.	H. Doc. 233, 89th Cong., 1st Sess.
38.		BONNEVILLE LOCK AND DAM -- LAKE BONNEVILLE, OR AND WA	
		Existing project was originally authorized Sep. 30, 1933, by Federal Emergency Administration of Public Works.	
	Aug 30, 1935	Existing project authorized by Congress.	S. Committee Print, 73d Cong., 2d Sess., (Report of Chief of Engineers dated Aug 21, 1933)
	Aug 20, 1937	Completion, maintenance, and operation of Bonneville project under direction of Secretary of War and supervision of Chief of Engineers, subject to certain provisions herein relating to powers and duties of Bonneville Power Administrator.	

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Mar 07, 1974	Authorizes relocation of town of North Bonneville to new town site.	P.L. 93-251
	Aug 22, 1984	Acquisition of Steigerwald Lake wetland area.	P.L. 98-396
	Oct 1992	Authorizes transfer of lands to town of North Bonneville.	P.L. 102-396, Sec. 9147
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
39.		COLUMBIA RIVER TREATY FISHING ACCESS SITES, OR & WA	
	Nov 1, 1988	Authorizes project for mitigation of lost treaty fishing access resulting from construction of Bonneville Dam.	Title IV of P.L. 100-581
	Oct 12, 1996	Boundary adjustments.	P.L. 104-303, Sec. 512 39.
40.		COUGAR LAKE, OR	
	May 17, 1950	Rockfill dam.	H. Doc. 531, 81st Cong., 2d Sess.
	Sep 03, 1954	Addition of power	P.L. 83-780.
	Oct 23, 1962	Strube Lake reregulating dam.	P.L. 87-874
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
41.		DETROIT LAKE - BIG CLIFF, OR	
	June 28, 1938	Authorizes concrete gravity structure.	H. Doc. 544, 75th Cong., 3d Sess.
	Jun 30, 1948	Addition of power and regulating Big Cliff Dam. with power	P.L. 858, 80th Cong. 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
42.		GREEN PETER-FOSTER LAKES, OR	
	May 17, 1950	Authorized Green Peter Dam in lieu of originally authorized Sweet Home Lake (1938).	H. Doc. 531, 81st Cong., 2d Sess.
	Sep 03, 1954	Addition of power at Green Peter and White Bridge Reregulating Dam.	P.L. 83-780, F. C. Act 1954
	Jul 14, 1960	Changes location of reregulating dam from White Bridge location to Foster.	S. Doc. 104, 86th Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
43.		HILLS CREEK LAKE, OR	
	May 17, 1950	Earth and gravel fill dam.	H. Doc. 531, 81st Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
44.		JOHN DAY LOCK AND DAM - LAKE UMATILLA, OR AND WA	
	May 17, 1950	Multiple-purpose dam, flood control, navigation, and power	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	Mar 24, 1965	John Day waterfowl management area.	S. Doc. 28, 89th Cong., 1st Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
45.		LOOKOUT POINT - DEXTER LAKES, OR	
	Jun 28, 1938	Earth-and-gravel filled dam.	H. Doc. 544, 75th Cong., 3d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	May 17, 1950	Addition of power and authorization of Dexter Lake as reregulating dam.	H. Doc. 531, 81st Cong., 2d Sess.
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
46.		LOST CREEK LAKE, ROGUE RIVER BASIN, OR	
	Sep 21, 1962	Rock and gravel fill embankment dam, including power.	H. Doc. 566, 87th Cong., 2d Sess.
	Oct 15, 1966	Authorizes construction of project but not operation for irrigation until local interests agree to repay cost allocated.	P.L. 89-689, Public Works Approp. Act, 1967
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486

TABLE 28-B (Cont'd) AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
47.		THE DALLES LOCK AND DAM -- LAKE CELILO, WA AND OR	
	May 17, 1950	Multiple-purpose dam, flood control, navigation. and power	H. Doc. 531, 81st Cong., 2d Sess.
	Dec 22, 1944	Construction, operation, and maintenance of recreation facilities.	Sec 4, Flood Control Act of 1944, as amended
	1992	Authorizes direct funding from Secretary of Interior to operate and maintain power facilities in the Pacific Northwest and improvements and replacements to the power generation facilities.	P.L. 102-486
48.		COLUMBIA RIVER FISH MITIGATION, OR and WA	
	Jul 19, 1988	Design, test, and construct fish bypass facilities.	P. L. 100-371
49.		WILLAMETE RIVER TEMPERATURE CONTROL, OR	
	Oct 12, 1996	Authorized modifications to intake towers to benefit fish habitat.	P.L. 104-303
	Aug 17, 1999	Increased authorized cost.	P.L. 106-53

Footnotes:

- | | |
|--|---|
| 1. Contains latest published maps. | 5. Inactive. |
| 2. Public Resolution 105, 67th Cong. | 6. Permanent appropriations Repeal Act. |
| 3. Public Works Administration. | 7. Flood Control Act |
| 4. Includes following work, classified inactive. A channel to
Hobsonville 200 feet wide and 16 feet deep, with a turning
basin 500 feet wide at Hobsonville, and regulating works as needed. | 8. Classified Deferred. |
| | 9. Spur Jetty "B" classified inactive |

PORTLAND, OREGON DISTRICT

TABLE 28-C

OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
Alsea River, OR	Completed		2,000	26,237
Astoria Turning Basin, OR ¹	Completed	1977	870,139	
Bandon Small Boat Basin, Coquille, OR ¹	Completed	1985	1,173,524	
Bridges, Columbia River, Cascade Locks and Hood River, OR (Alteration)	Completed	1944	1,081,806	16,648
Cathlamet, WA ¹	Completed	1971	171,467	
Charleston Channel, Coos Bay, OR ¹	Completed	1985	1,197,300	
Clatskanie River, OR ²	Completed	1969	19,2400 ³	194,896 ⁴
Columbia River, Illwaco, WA ¹		1986	1,589,231	
Coos & Millicoma Rivers, OR	Completed	1991	350,238 ¹⁸	2,152,914
Cowlitz River, WA	Completed	1985	277,436 ⁶	1,474,036
Cushman-Mapleton Channels (Siuslaw River), OR ¹	Completed	1975	329,423	
Deep River, WA ²	Completed	1963	15,384	32,768
Depoe Bay, OR ¹	Completed	1971	145,588 ⁵	
Elochoman Slough, WA ²	Completed	1990	18,641 ¹⁷	196,864
Grays River, WA ²	Completed	1941	2,500	35,670
Hammond Small Boat Basin, OR ¹	Completed	1977	519,090 ⁷	
Interstate Bridge, Columbia River, Portland, OR to Vancouver WA (Alteration)	Completed	1961	1,154,162 ⁸	
Interstate Highway Bridge (Barge Channel), OR ¹	Completed	1963	15,281	
Kalama Turning Basin, Kalama, WA ¹	Completed	1986	302,000	
Lake River, WA	Completed	1983	2,700	58,127
Lewis River, WA	Completed	1985	58,132	685,677
Long Tom River, OR	Completed			4,000
Mooring for Battleship Oregon, OR	Completed			25,000
Multnomah Channel, OR ²	Completed	1982	437,669 ⁹	
Nehalem Bay, OR	Completed	1987	302,006 ¹⁰	55,195
Nestucca River, OR	Completed			6,000
Oregon Slough, (North Portland Harbor), OR ²	Completed	1963	16,881	90,514
Salmon River, OR ²	Completed	1949	2,145	
Smith River, OR ²	Completed	1974	143,120	205,130
Skamokawa Creek, WA	Completed	1991	2,400	436,185
South Channel, Government Island, OR ¹	Completed	1985	119,800 ¹¹	
South Slough (Charleston), OR ¹	Completed	1970	26,821	
The Cascades Canal, Columbia River, OR ¹²	Abandoned	1939	3,903,780	559,858
The Dalles-Celilo Canal, OR and WA ¹³	Abandoned	1957	4,716,205	2,833,888
Tongue Point, OR ¹	Completed	1992	2,807,876 ¹⁹	
Umatilla Harbor, OR ¹⁴	Abandoned	1952		
Westport Slough, OR ²	Completed	1966	16,276	171,909
Willamette River above Portland and Yamhill River, OR	Completed	1985	862,918	17,900,293
Winchester Bay, Umpqua River, OR	Completed	1985	1,616,369	
Yaquina Bay and Harbor Small Boat Basin, OR ¹	Completed	1979	891,695 ¹⁵	
Yaquina River, OR ¹	Completed	1971	195,313 ¹⁶	
Youngs and Clatskanie River, OR	Completed		2,000	
Youngs Bay and Youngs River, OR ²	Completed	1979	9,348	34,449
7.5 MCY Standby Time	Completed	1996		4,314,000

TABLE 28-C (Cont'd) OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
Footnotes:				
1. Authorized by Chief of Engineers (sec. 107).			11. Excludes \$102,000 contributed funds.	
2. Channel adequate for present commerce.			12. Project abandoned due to flooding by Bonneville Dam pool.	
3. Includes \$15,537 for previous project			13. Project abandoned due to flooding by The Dalles Dam pool.	
4. Includes \$23,489 for previous project.			14. Project transferred to Portland District from Walla Walla District	
5. Excludes \$42,000 contributed funds.			FY 1974 and abandoned due to flooding by the John Day Dam pool.	
6. Includes \$239,529 for Sec. 107 project.			15. Excludes \$969,342 contributed funds.	
7. Excludes \$75,000 contributed funds.			16. Excludes \$50,565 contributed funds	
8. Non-Federal funds, \$1,204,100.			17. Excludes \$86,586 contributed funds.	
9. Includes \$419,557 for Sec. 107 project.			18. Excludes \$80,000 contributed funds; includes \$8,000 for previous project.	
10. Excludes \$304,826 contributed funds.			19. Excludes \$1,776,008 contributed funds.	

TABLE 28-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
COLUMBIA RIVER BASIN				
Blind Slough Diking District, Clatsop County, OR	Completed	1939	163,397	
Consolidated Diking and Improvement District 1,Cowlitz County, WA	Completed	1941	163,291	
Deep River Area, Wahkiakum County, WA	Completed	1942	69,724	
Deer Island Area, Columbia County, OR	Completed	1943	574,123	
Diking District 2, Clatsop County, OR	Completed	1940	25,609	
Diking District 5, Clatsop County, OR	Completed	1940	25,609	
Diking and Improvement District 5, Cowlitz County, WA	Completed	1940	161,381	
Diking District 1 and 3 (Puget Island) and Little Island, Wahkiakum County, WA	Completed	1941	258,795	
Diking Improvement District 1, Pacific County WA	Completed	1941	26,810	
Diking and Improvement District 4, Wahkiakum County, OR	Completed	1951	169,542	
Drainage District 1, Clatsop County, OR	Completed	1939	240,939	
John Day River Area, Clatsop County, OR	Completed	1942	33,080	
Karlson Island, Clatsop County, OR	Completed	1941	25,773	
Knappa Area, Clatsop County, OR	Completed	1942	18,789	
Lewis and Clark River Area, Clatsop County, OR	Completed	1942	158,419	
Lower Cowlitz River Area, Clatsop County, OR	Completed	1961	91,652	
Magruder Drainage District, Columbia County, OR	Completed	1940	61,186	

TABLE 28-E (Cont'd)

OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
COLUMBIA RIVER BASIN (Cont'd)				
Marshland Drainage District, Columbia County, OR	Completed	1940	39,475	
Midland Drainage District, Columbia County, OR	Completed	1939	77,774 ³	
Multnomah Drainage District 1, OR	Completed	1951	593,034 ⁴	
Peninsula Drainage District 1, Multnomah County, OR	Completed	1942	241,148	
Port of Kalama, WA ¹	Completed		99,844	
Rainier Drainage District, Columbia County, OR	Completed	1942	47,662	
Sauvie Island Areas A and B, Multnomah County, OR	Completed	1951	1,623,505	
Scappoose Drainage District, OR	Completed	2000	4,121,487	
Skamokawa Creek Area, Wahkiakum County, WA	Completed	1946	178,885	
Wahkiakum County Consolidated Diking District No. 1, WA	Completed	1985	5,289,833	
Tenasillahe Island, Clatsop County, OR	Completed	1939	133,778	
Upper Grays River Area, WA	Completed	1947	61,263	
State Hwy 101 & 401, Columbia River, WA ¹	Completed	1985	504,642 ¹¹	
Walluski River, Clatsop County, OR	Completed	1942	66,932	
Warrenton Diking District, 1, Clatsop County, OR	Completed	1940	69,503	
Warrenton Diking District 2, Clatsop County, OR	Completed	1940	74,596	
Webb District Improvement Co., Columbia County, OR	Completed	1940	84,592	
Westland District Improvement Co., Columbia County, OR	Completed	1940	205,531	
Westport District Columbia and Clatsop Counties, OR	Completed	1943	40,658	
Woodson Drainage District, Columbia County, OR	Completed	1940	22,797	
Youngs River Dikes, Clatsop County, OR	Completed	1942	248,802	
LEWIS RIVER BASIN				
Diking and Improvement District 11, Cowlitz County, WA	Completed	1943	172,521	
COWLITZ RIVER BASIN				
Cowlitz County Drainage Improvement District 1, WA	Completed	1939	42,978	
Diking Improvement District 13, Cowlitz County, WA	Completed	1939	28,592	
Huntington Avenue, Castle Rock, WA ¹	Completed	1985	250,000	
Mt. St. Helens and Vicinity, WA	Completed	1995	42,036,000	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
LOWER COLUMBIA RIVER BASIN				
Beaver Drainage District, OR	Completed	1984	3,131,944	
Cowlitz County Consolidated Diking Improvement District No. 2, WA	Completed	1977	1,661,367	
Cowlitz County Diking Improvement District 2, WA	Completed	1967	363,000	
Cowlitz County Diking Improvement District 13, WA	Completed	1967	65,345	
Cowlitz County Diking Improvement District 15, WA	Completed	1967	304,794	
Cowlitz River, Hopkins Creek, WA ¹	Completed		236,860	
Hayden Island, OR	Inactive			
Midland Drainage District, OR	Completed	1971	304,511	
Multnomah County Drainage District 1, OR	Completed	1964	1,499,186	
Peninsula Drainage District 2, OR	Active	1961	35,265	
Rainier Drainage District, OR	Completed	1967	593,945	
Sandy Drainage District, OR	Completed	1954	154,012 ⁵	
Sauvie Island Drainage District, OR	Completed	1966	674,137	
Vancouver Lake Area, WA	Deferred	1981	889,391	
Wahkiakum Co. Diking District 4, WA	Inactive	1971	48,619	
Washougal Area Levees, Clark County, OR	Completed	1973	1,803,488	
Woodson Drainage District, OR	Completed	1964	162,500	
WILLAMETTE RIVER BASIN				
Amazon Creek, OR	Completed	1960	1,214,300 ⁶	
Mill Creek, Salem, OR	Completed	1993	175,800 ¹⁴	
Sandy River and Sleepy Hollow, OR ¹	Completed		276,700	
Whelton Ditch, OR	Inactive	1967	39,624	
ALL OTHER FLOOD CONTROL				
Arlington, Alkali Canyon, OR ⁷	Abandoned	1950	23,439	
Bear Creek, Medford, OR ¹	Completed		23,050	
Beaver Creek Near Tillamook, OR ²	Completed	1967	106,198	
Castle Rock, Cowlitz River, WA	Completed	1957	104,921	
Catching Inlet Drainage District				
Coos River, OR ²	Completed	1959	182,655	
Chewaucan River, Paisley, OR ¹	Completed		42,761	
Clackamas River at Dixon Farm Location, OR	Completed	1952	70,845 ⁸	
Days Creek Lake, OR (Phase I)	Deferred	1982	1,307,216	
Depoe Bay, Lincoln County, OR ¹	Completed		22,963	
Deschutes River, Bend, OR ²	Completed	1988	106,250 ¹³	
John Day River (West), OR ¹	Completed	1986	127,800	
Johnson Creek, OR	Active	1981	170,245	
McDonald Dike Road, Nehalem River, OR ¹	Completed	1985	29,500	

TABLE 28-E (Cont'd) OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
ALL OTHER FLOOD CONTROL (Cont'd)				
McKenzie River Near Walterville, OR ²	Completed	1966	148,358	
Miami River, OR ¹	Completed		15,321	
Yaquina River, OR	Completed	1948	118,433	
Molalla River at Milk Creek Location, OR ²	Completed	1955	55,007	
Molalla River at Ressel Location, OR ²	Completed	1952	55,189	
Nestucca River, Condor Road, OR ¹	Completed		11,690	
Nestucca River, Vicinity Pacific City, OR ¹	Completed		16,000	
Pendleton Levees, Umatilla River, OR ⁹				
(a) Riverside Area Units	Deferred	1960	9,100	
(b) State Hospital and City Areas (Zone 1)	Completed	1959	267,748	
(c) State Hospital and City Areas (Zone 2) ²	Completed	1960	161,540	
Pendleton, Umatilla River, OR ⁹	Completed	1939	143,263	
Reedsport Levees, Umpqua River, OR ²	Completed	1971	968,716 ¹⁰	
Rogue River, OR ¹	Completed		86,230	
Salmon Creek at Oakridge, OR ²	Completed	1960	288,447	
Salmon Creek Near Vancouver, WA ¹	Completed	1985	435,000 ¹²	
Sandy River, City of Troutdale, OR ¹	Completed	1994	365,000 ¹⁵	
Siuslaw River, Lane County, OR ¹	Completed		215,939	
Stillwell Drainage District, Tillamook Bay, OR ²	Completed	1961	176,351	
Sumner Parker Airport, OR ¹	Completed		92,500	
Trask River, Tillamook County, OR ¹	Completed	1984	121,273	
Tualatin, OR	Completed	1985	1,803,094	
Umatilla River, Stanfield, OR ¹	Completed		33,835	
Umatilla River, Thorn Hollow, OR ¹	Completed	1985	154,600	
Umpqua River and Tributaries, OR	Completed	1952	428,881	
Vicinity of Nehalem, Nehalem River, OR	Completed	1952	45,677	
West Makinster Rd., Wilson River, OR ¹	Completed	1986	176,000	
Wilson River, Vicinity Highway 101, OR ¹	Completed		30,000	

Footnotes:

1. Authorized by Chief of Engineers (Sec. 14).
2. Authorized by Chief of Engineers (Sec. 205).
3. Includes \$26,241, Emergency Relief Act Funds.
4. Excludes \$25,000 contributed funds.
5. Previous completed project, \$138,956; \$15,056 engineering costs project constructed by local interests.
6. Excludes \$154,751 contributed funds.
7. Project transferred from Walla Walla District FY 1974 and abandoned due to flooding by the John Day Dam pool. Includes \$3,328 FY 1960 preauthorization costs, Sec. 205, P.L. 80-85. See FY 1960 Annual Report, page 1887.
8. Excludes \$2,520 contributed funds.
9. Reported by Walla Walla District prior to 1974.
10. Excludes \$230,070 contributed funds for new work and \$31,284 Government furnished sheet steel pile.
11. Includes \$254,642 contributed funds.
12. Includes \$185,000 contributed funds.
13. Excludes \$5,822 contributed funds.
14. Excludes \$31,031 contributed funds.
15. Excludes \$98,313 contributed funds.

TABLE 28-F OTHER AUTHORIZED MULTIPLE PURPOSE PROJECTS, INCLUDING POWER

Project	Status	For Last Full Report See Annual Report for	Cost to Sep. 30, 2001	
			Construction	Operation and Maintenance
Restoration of Indian Fishing Grounds Bonneville, OR	Completed	1969	185,000	
Columbia and Snake Rivers Ports Dredging, OR & WA	Inactive	1994		5,799,926

TABLE 28-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Area East of Albany, OR		1977		
Bachelor Island, WA		1977		
Bear Creek, Long Tom River, OR	1966	1971	4,559	
Calapooya River, OR	1959	1965	11,595	
Cascadia Lake, OR		1987	954,114 ¹	
Chetco River, OR		1997	235,353	
Clatskanie River Area, Columbia County, OR	1960	1965	268	
Clatskanie Drainage Dist. 1, OR	1964	1978	18,543	
Clatsop County Drainage District 1, OR	1960	1974	4,472	
Clatsop County Diking District 3, OR	1938	1961	258	
Clatsop County Diking District 4, OR		1978		
Clatsop County Diking District 6, OR	1961	1978	8,824	
Columbia Drainage District No. 1, OR		1987		
Columbia River, Seafarers Memorial	2000	2000	52,024	
Columbia Slough, OR	1953	1978	21,352	
Coquille River, OR	1948	1953	908	
Cowlitz County Consolidate Diking Improvement District 1, OR		1977		
Cowlitz River at Randle, WA	1962	1977	11,095	
Coyote and Spencer Creek, Long Tom River, OR	1960	1970	6,819	
Deer Island Drainage District, OR		1987		
East Muddy and Lake Creek, OR	1959	1970	6,465	
Ferguson Creek Long Tom River, Or		1978		
Flat Creek, Long Tom River, OR		1977		
Floodwall and Levees at Portland, OR		1977		
Gate Creek Lake, OR		1987	745,001 ²	
Holley Lake, OR	1963	1987	241,992 ³	

TABLE 28-G (Cont'd)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report for	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
John Drainage District, OR	1961	1979	23,754	
John Day River, OR	1974	1974	210,220	
Kalama River (South Area) Levee, Cowlitz County, WA	1969	1978	55,594	
Lake River Delta Area, WA		1977		
Lewis River Area, WA		1978		
Magruder Drainage District, OR	1940	1974	774	
Mud and Basket Slough Rickreall Creek, OR		1977		
Pendleton Levees, Riverside Area, OR		1987	9,000	
Peninsula Drainage District 1, OR	1942	1977	43,292	
Pilot Rock, Birch Creek, OR	1963	1968	4,558	
Prescott Area, Columbia County, OR	1941	1978	125	
Prineville Area, Crooked River and Ochoco Creek, OR	1962	1977	11,318	
Pudding River, OR	1950	1979	5,000	
Shelton Ditch, Marion County, OR	1967	1987	39,624	
Skamokawa (Steamboat Slough), WA	1939	1979		
Soap Creek, WA		1977		
Turner Prairie, Mill Creek, OR		1978		
Umatilla River (Echo), OR	1960	1964	24,145	
Umpqua River-Scholfield River, OR		1987	4,000	
Waldo Lake Tunnel, OR		1958		
West Muddy Creek and Mary's River, OR	1962	1970	4,056	
Westport Slough, OR (Modification for 32-foot channel)	1966	1977		
Wiley Creek Lake, OR	1960		112,000	
Willamette River above Portland and Yamhill River, OR (uncompleted portions)		1987		
Willamette Falls Fishladder, OR	1961			
Willamette River at Willamette Falls, OR	1948	1987	142,883	

Footnotes:

1. Excludes Pro-rata share of \$112,000 for Sweet Home Reservoir.
2. Excludes Pro-rata share of \$95,000 for Quartz Creek Reservoir.
3. Excludes \$100,000 preauthorization study costs.

TABLE 28-H **COLUMBIA AND LOWER WILLAMETTE RIVER**
BELOW VANCOUVER, WA, AND PORTLAND, OR
TOTAL COST OF EXISTING PROJECT TO SEP. 30, 2001
(SEE SECTION 3 OF TEXT)

Funds	New Work	Maintenance	Total
Regular	28,349,304	441,814,957	470,164,261
Public Works	446,296	14,414	460,710
Emergency Relief Administration	138,449	98,668	237,117
Total U.S.	28,934,049	441,928,039	470,862,088
Contributed Prior to 1964	223,026	24,320	247,346
Contributed (1975) 35 to 40-foot Channel	442,928		442,928
Total Contributed	665,954	24,320	690,274
Total All Funds	29,600,003	441,952,359	471,552,362

TABLE 28-I **PROJECT CONDITION SURVEYS**
(SEE SECTION 21 OF TEXT)

Project	Date Survey Conducted
Tillamook, OR	Apr 2001
Hood River Boat Basin, OR	Dec 2001
Siuslaw River - Florence to Mapleton, OR	Sep 2001
Hammond Boat Basin, OR	Apr 2000
Cathlamet Bay, WA	Mar 2001
Cathlamet Channel, WA	Mar 2001

TABLE 28-J **WILLAMETTE RIVER AT WILLAMETTE FALLS, OR**
PRINCIPAL FEATURES OF EXISTING CANAL AND LOCKS
(SEE SECTION 18 OF TEXT)

Usable Lock Dimensions	Series of 4 locks, each 175 feet by 37 feet ¹
Lift of each lock	Lock 1 (Lower), 22.5 feet; Lock 2, 8.7 feet; Lock 3, 10.9 feet and Lock 4 (Upper), 8.1 feet ²
Depth of Miter Sills at Lower Water	Lower Lock, 8.4 feet; Upper Lock, 6 feet
Character of foundation	Rock
Kind of Dam	Fixed ³
Type of Construction	Concrete
Year of Completion	1873; Purchased by United States Apr. 26, 1915
Cost.....	Unknown; purchase price \$375,000

Footnotes:

1. A guard lock 210 by 40 feet, which is used only at higher states of water, is at upper end of canal basin.
2. A concrete division wall, 1,227 feet long, extending from Lock 4 to Guard Lock, separates upper basin of canal from head race, which formerly led directly from basin and supplied water for powerplants operated by Crown Zellerbach Corp., and Portland Ry., Light & Power Co., which is now being operated by Portland General Electric Co.
3. The dam is owned by private parties.

TABLE 28-K FLOOD CONTROL RESERVOIR OPERATIONS

See Section in Text	Project	Date of Peak Inflow	Peak Inflow Cu. Ft./Sec.	Storage Used Acre/feet
24.	Applegate Lake, OR	March 24, 2001	930	3,772
25.	Blue River Lake, OR	December 22, 2000	1,830	1,939
26.	Cottage Grove Lake, OR	December 22, 2000	1,170	1,020
40.	Cougar Lake, OR	December 22, 2000	1,320	1,600
41.	Detroit Lake, OR	December 22, 2000	5,100	8,600
27.	Dorena Lake, OR	December 22, 2000	2,900	4,080
29.	Fall Creek Lake, OR	December 22, 2000	1,200	233
30.	Fern Ridge Lake, OR	December 22, 2000	2,360	3,192
42.	Foster Lake, OR	December 22, 2000	6,550	1,930
42.	Green Peter Lake, OR	December 22, 2000	7,540	7,230
43.	Hills Creek Lake, OR	December 22, 2000	2,170	1,640
45.	Lookout Point Lake, OR	December 22, 2000	4,760	7,935
46.	Lost Creek Lake, OR	March 28, 2001	4,230	11,550

**TABLE 28-L WORK UNDER SPECIAL AUTHORITIES
PROJECTS NOT SPECIFICALLY AUTHORIZED**

Project	Status ¹	Fiscal Year Costs		Total
		Federal	Non-Federal	
Beach Erosion Control Projects Pursuant to Section 103 of the 1962 Rivers and Harbors Act, Public Law 874, 87th Congress, As Amended (See Section 23 of text)				
Lincoln City Highway 101, OR	F	33,433	---	33,433
Rock Creek, Highway 101, OR	F	77,578	24,712	102,290
US 101, Beverly Beach, OR	F	7,638	2,874	10,512
Coordination		9,957	---	9,957
Total Section 103		128,606	27,586	156,192
Navigation Activities Pursuant to Section 107 of the 1960 Rivers and Harbors Act, Public Law 645, 86th Congress, as Amended (See Section 22 of text)				
Port of Brookings (Chetco), OR	F	94,253	86,097	180,350
Port of Morrow, OR	X	-1,260	3,088	1,828
Coordination		7,084	---	7,084
Total Section 107		100,077	89,185	189,262

TABLE 28-L (Cont'd)

**WORK UNDER SPECIAL AUTHORITIES
PROJECTS NOT SPECIFICALLY AUTHORIZED**

Project	Status ¹	Fiscal Year Costs		Total
		Federal	Non-Federal	
Flood Control Activities Pursuant to Section 205 of the Flood Control Act of 1948, Public Law 858, 80th Congress, as Amended (See Section 37 of text)				
Dougherty Slough, Jefferson, OR	F	29,886	---	29,886
Keizer, OR	C	141,260	22,244	163,504
Malhuer Basin, Harney County, OR	F	22,575	---	22,575
Mill Creek, The Dalles, OR	X	25	---	25
Medford, OR	F	27,339	---	27,339
Salem, OR	F	13,582	76,718	90,300
Coordination		8,029	---	8,029
Total Section 205		242,696	98,962	341,658
Emergency Streambank Protection Activities Pursuant to Section 14 of the 1946 Flood Control Act, Public Law 526, 79th Congress as amended (See Section 37 of text)				
I-84 At Corbett, OR	F	30,544	---	30,544
Grant Pass, OR	C	891,218	95,925	987,143
Albany, OR	F	2,107		2,107
Total Section 14		923,869	95,925	1,019,794
Project Modifications for Improvement of the Environment Pursuant to Section 1135 of the 1986 Water Resources Development Act, Public Law 662, 99th Congress, as Amended (See Section 50 of text)				
Amazon Creek Wetlands, OR	C	443,199	55,785	498,984
Brownsmead, OR	F	9,989	---	9,989
Clatskanie River, OR	C	-2,560	43,879	41,319
Fern Ridge Lake Marsh Restoration, OR	C	18,983	1,782	20,765
Fox Creek, OR	C	44,720	---	44,720
Lower Columbia Slough	P	66,979	---	66,979
Richardson Park, OR	D	1,038	---	1,038
Steigerwald Lake, WA	F	6,001	---	6,001
SW Washington Streams, WA	F	1,830	---	1,830
Willamette Mission State Park, OR	F	117,880	---	117,880
Initial Appraisals		---	---	---
Coordination		19,295	---	19,295
Total Section 1135		727,354	101,446	828,800
Aquatic Ecosystem Restoration Pursuant to Section 206 of the 1996 Water Resources Development Act, Public Law 303, 104th Congress, as Amended (See Section 50 of text)				
Big Butte Creek, OR	F	31,853	---	31,853
Camp Polk Meadow, OR	D	65,871	---	65,871
East Birch Creek Restoration, OR	F	180,852	---	180,852
Eugene Delta Ponds, OR	F	235,307	---	235,307
Gold Hill Dam, OR	D	23,310	---	23,310
Gross Creek, Bandon, OR	F	18,610	---	18,610
Salmon Creek, WA	F	56,901	---	56,901
Skipanon River, OR	F	8,956	---	8,956

TABLE 28-L (Cont'd)

**WORK UNDER SPECIAL AUTHORITIES
PROJECTS NOT SPECIFICALLY AUTHORIZED**

Project	Status ¹	Fiscal Year Costs		Total
		Federal	Non-Federal	
Aquatic Ecosystem Restoration Pursuant to Section 206 (Cont'd)				
Springfield Millrace, OR	F	278,336	---	278,336
Tualatin Wetlands, OR	F	8,902	---	8,902
Trout Creek, OR	D	19,732	---	19,732
Upper Rogue Habitat Protection & Restoration, OR	F	7,900	---	7,900
Westmoreland Park, OR	F	168,822	---	168,822
Preliminary Restoration Plans		24,111	---	24,111
Coordination		29,966	---	29,966
Total Section 206		1,159,429	---	1,159,429

1/ Status: C = Construction; D = Planning and Design Analysis; F = Feasibility; P = Plans and Specifications; X=Fiscal Close Out

TABLE 28-M

**FLOOD CONTROL ACTIVITIES
WORK UNDER SPECIAL AUTHORITIES
EMERGENCY RESPONSE ACTIVITIES
(SEE SECTION 54 OF TEXT)**

	Federal Funds Expended	Contributed Funds Expended
Disaster Preparedness Program (Category 100)		
Planning	404,896	0
Training and Exercise	7,048	0
Facilities	2,190	0
National Center for Expertise	0	0
	<hr/>	<hr/>
Total Disaster Preparedness Program	414,134	0
Emergency Operations (Category 200)		
Response Operations	4,656	0
Post Flood Response	0	0
Acquisition of Supplies/Equip	0	0
Operational Deployment	0	0
	<hr/>	<hr/>
Total Emergency Operations	4,656	0
Rehabilitation (Category 300)		
Federal Flood Control Works	54,286	0
Non-Federal Flood Control Works	0	0
Field Investigations	19,096	0
Initial Eligibility Inspections	0	0
Continuing Eligibility Inspections	11,481	0
	<hr/>	<hr/>
Total Rehabilitation	84,863	0
Advance Measures		
Advance Measure Assistance	0	0
Field Investigations	0	0
	<hr/>	<hr/>
Total Advance Measures	0	0
Reimbursement Activity		
Other Agencies	0	0
Other Corps Offices	80,845	0
	<hr/>	<hr/>
Total Reimbursement Activity	80,845	0

TABLE 28-N

**PRINCIPAL DATA CONCERNING COLUMBIA RIVER
NAVIGATION LOCK, SPILLWAY DAM, AND POWERPLANT**

Project

Bonneville Lock and Dam OR and WA - Lake Bonneville (See Section 38 of Text)	NAVIGATION LOCK (NEW)	
	Dimensions:	
	Clear Width of Chamber	86 Feet
	Greatest Length Available for Full Width	675 Feet
	Lift (Vertical):	
	At Extreme Low Water and Normal Pool Level	66 Feet
	At Normal River Stage	59 Feet
	At Extreme High Water	About 30 Feet
	Depth Over Miter Sills at Adopted Low Water	19 Feet
	Character of Foundation	Andesite
	Open to Navigation	March 1993
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	1938
	Capacity	1,600,000 CFS
	Elevation of Gate Sills on Crest of Spillway	23.3 Feet
	Height above Lowest Foundation	About 170 Feet
	Length of Dam Proper	1,090 Feet
	Length of Dam Overall	1,230 Feet
	Width at Base	200 Feet
	Gate Openings	18
	Crest Overflow (Above Mean Sea Level)	24 Feet Pool
	Elevation(Normal)(Above Mean Sea Level)	72 Feet
	POWERPLANT	
	Length (First Powerhouse)	1,027 Feet
	Length (Second Powerhouse)	953 Feet
	Width (First Powerhouse)	190 Feet
	Width (Second Powerhouse)	235 Feet
	Height (Roof to Bedrock) (First Powerhouse)	190 Feet
	Height (Roof to Bedrock)(Second Powerhouse)	200 Feet
	Generator (Station Unit)	1 @ 5,000 kw
	Generators (First Powerhouse)	1 @ 48,000 kw
		1 @ 59,500 kw
		8 @ 60,000 kw each
	Generators (Second Powerhouse)	8 @ 66,500 kw each
	Fishwater Supply Units (Second Powerhouse)	2 @ 13,100 kw each
	Total Rated Capacity	1,145,700 kw
	Speed	75 Revolutions per Minute
John Day Lock and Dam, OR and WA - Lake Umatilla (See Section 44 of Text)	NAVIGATION LOCK	
	Clear Width	86 Feet
	Clear Length	669 feet
	Lift:	
	Minimum	97 Feet
	Average	105 Feet
	Maximum	113 Feet
	Minimum Water Depth Over Sills	15 Feet
	Opened to Navigation	April 1968
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1968
	Maximum Capacity	2,250,000 cfs
	Crest Elevation	210 Feet
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 ft. by 58.5 Ft.
	Number	20

TABLE 28-N
(Cont'd)**PRINCIPAL DATA CONCERNING COLUMBIA RIVER**
NAVIGATION LOCK, SPILLWAY DAM, AND POWERPLANT**Project**

The Dalles Lock and Dam, OR and WA - Lake Celilo (See Section 47 of Text)	POWERPLANT	
	Length	1,975 Feet
	Width	243 Feet
	Generating Units:	
	Number Installed	16
	Space for Additional	4
	Rating, Each	135,000 kw
	Total Installed Capacity	2,160,000 kw
	Total Potential Capacity	2,700,000 kw
	Maximum Structural Height	235 Feet
	First Power-On-Line	July 1968
	IMPOUNDMENT	
	Elevations: Normal Operating Range	268-257 Feet
	Maximum	276 Feet
	Flood Control Storage	500,000 Ac.-ft.
	Lake Length	76.4 Miles
	Lake Water Surface Area At Elevation 268	55,000 Acres
	Navigation Channel, Depth by Width	15 Ft. by 250 Ft.
	Length of Shoreline	200 miles
	NAVIGATION LOCK	
	Type	Single Lift
	Lift Normal	87.5 Feet
	Net Clear Length	675 Feet
	Net clear Width	86 Feet
	Normal Depth Over Upper Sill	20 Feet
	Minimum Depth Over Lower Sill	15 Feet
	Opened To Navigation	March 17, 1957
	SPILLWAY DAM	
	Type	Controlled
	Elevation of Crest	121 Ft. msl
	Top of Crest Gates	162 Ft. msl
	Number of Gates	23
	Size of Gates	50 by 43 Feet
	Height (Foundation to Crest)	120 Feet
	Design Flood	2,290,000 cfs
	POWERPLANT	
	Powerhouse Dimensions	240 by 2,150 feet
	Generators Main Units	14 @ 78,000 kw each
		8 @ 86,000 kw each
	Fishwater Supply Units	2 @ 13,500 kw each
	Total Rated Capacity	1,807,000 kw
	Station Service Units	2 @ 3,000 kw each

PORTLAND, OREGON DISTRICT

TABLE 28-O

**96-89X4045 APPROPRIATION
BONNEVILLE POWER ADMINISTRATION**

Project	Expenditures					Total Cost To Sep 30, 2001
	FY97	FY98	FY99	FY00	FY01	
Bonneville	197,994	416,161	1,668,674	3,082,172	7,005,150	12,458,330
Columbia River Fish Mitigation	0	0	0	0	0	6,000,000
Cougar	6,558	9,955	3,992	2,287	169,559	192,351
Detroit	13,116	143,205	254,025	336,523	111,084	857,953
Green Peter	12,124	85,027	835,485	1,558,120	244,021	2,734,777
Hills Creek	7,544	7,463	1,976	28,381	124,865	170,229
John Day	130,229	612,077	1,813,742	1,523,451	2,711,551	6,819,050
John Day Rehab	0	157,294	811,937	2,202,667	685,634	3,857,532
Lookout	15,694	95,001	162,810	598,874	10,546	882,925
Lost Creek	702	1,621	0	0	0	2,323
The Dalles	<u>1,882,171</u>	<u>2,646,696</u>	<u>2,229,793</u>	<u>2,033,790</u>	<u>3,005,658</u>	<u>14,024,247</u>
Total	2,266,132	4,174,500	7,782,434	11,366,265	14,068,068	47,999,717

TABLE 28-P

HYDROPOWER GENERATION

Project	FY01 Generation of Electricity in Megawatt-Hours (MWH)
Bonneville	4,330,637
The Dalles	5,578,099
John Day	7,409,889
Cougar	108,760
Detroit/Big Cliff	340,634
Green Peter/Foster	215,451
Hills Creek	105,898
Lookout Point/Dexter	274,308
Lost Creek	<u>195,880</u>
Total	18,559,556

TABLE 28-Q INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(SEE SECTION 35 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
<u>State of Oregon</u>				
Clackamas County				
Dixon Farm	Lower Clackamas Water Control District	Clackamas	4/5/01	E
Sleepy Hollow Location	Clackamas County	Sandy	4/23/01	E
Clatsop County				
Clatsop #15 Dr. Improv. Co.	Clatsop No. 15, Drainage Improvement Co.	Columbia	5/31/01	VG
Clatsop Co. Dr. Imp. Co. #1	Clatsop Co Drainage, Improvement Co No. 1	Columbia	4/18/01	VG
Clatsop Co. Dk. Dist. #5	Clatsop County Diking	Columbia	9/12/01	E
Clatsop Co. Dk. Dist. #7	Clatsop County Diking, District No. 7	Blind Slough	4/18/01	E
Youngs River	Clatsop Co Diking, Improvement Co No. 9	Youngs	8/30/01	F
Tucker/Battle Creek	Clatsop Co Diking Improvement Co No. 9	Youngs	8/30/01	G
Grant	Clatsop Co Diking Improvement Co No. 9	Youngs	8/30/01	VG
Tansy Point Location	Port of Astoria	Columbia	8/28/01	E
Warrenton Dr. Dist. #1	City of Warrenton	Columbia	8/28/01	E
Warrenton Dr. Dist. #2	City of Warrenton	Skipanon	8/28/01	E
Warrenton Dr. Dist. #3	City of Warrenton	Columbia	8/28/01	E
Svenson Is Dist. Imprv. Co	Svenson Island District Improvement Company	Columbia	8/27/01	VG
John Day River Road Location	Clatsop County	John Day	3/15/01	E
Tansy R.R. Location	City of Warrenton	Columbia	8/28/01	E
Columbia/Multnomah County				
Sauvie Island	Sauvie Island Drainage Improvement Company	Columbia	5/9/01	E
Columbia County				
Scappoose Dr. Imp. Company	Scappoose Drainage Improvement Company	Columbia	3/22/01	E
Deer Island D. I. Company	Deer Island Drainage District	Columbia	6/15/01	VG
Rainier Water Imp District	Rainier Water Improvement District	Columbia	5/1/01	E
Beaver Drainage Improv. Co.	Beaver Drainage Improvement Co., Inc.	Columbia	5/29/01	E
Magruder Dr. Improv. Co.	Magruder Drainage Improvement Co., Inc.	Columbia	5/30/01	G
Midland Dr. Improv. Co.	Midland Drainage Improvement Co., Inc	Columbia	5/30/01	VG
Marshland Dr. Improv. Co.	Marshland Drainage Improvement Co., Inc	Columbia	5/29/01	E
Webb District Improv. Co.	Webb District Improvement Company	Columbia	5/30/01	G
Woodson Drainage District	Woodson Drainage District	Columbia	5/29/01	E
Westland Dist. Improv. Co.	Westland District Improvement Company	Columbia	5/30/01	E
Coos County				
Catching Inlet Dr Dist	Catching Inlet Drainage District	Catching Slough	8/15/01	VG
Deschutes County				
Bend Ice Boom	City of Bend	Deschutes	4/24/01	E
Douglas County				
Reedsport Levee	City of Reedsport	Umpqua	8/15/01	E
Jackson County				
Bear Creek	City of Medford	Bear Cr	8/6/01	E

PORTLAND, OREGON DISTRICT

TABLE 28-Q INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(Cont'd) (SEE SECTION 35 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
Josephine County				
Pierce Riffle	Grants Pass Irrigation District	Rogue	8/6/01	E
Pierce Riffle U/S Ext.	Grants Pass Irrigation District	Rogue	8/6/01	E
Rogue River at Grants Pass	City of Grants Pass	Rogue	8/6/01	E
Lake County				
Paisley Revetment	City of Paisley	Chewaucan	4/23/01	E
Lane County				
Rhododendron Drive	Lane County Public Works	Siuslaw	8/15/01	E
Amazon Creek	City of Eugene Public Works Department	Amazon	8/16/01	E
Lincoln County				
Depoe Bay	City of Depoe Bay	S. Depoe Bay Cr	8/14/01	E
Mill Four	Mill Four Drainage District	Yaquina	8/14/01	E
Depoe Creek	Lincoln County Drainage District No. 1	Depoe Cr	8/14/01	E
Linn County				
Landfill Location	City of Albany	Calapooia	3/13/01	E
Marion County				
Mill Creek (Salem)	City of Salem Public Works Department	Mill Creek	3/13/01	E
Multnomah County				
Sandy Dr. Improvement Co	Sandy Drainage Improvement Company	Columbia	4/3/01	E
Multnomah Co. Dr. Dist. #1	Multnomah County Drainage District No. 1	Columbia	4/3/01	E
Peninsula Dr. Dist. No. 2	Peninsula Drainage District No.2	Columbia	4/3/01	E
Peninsula Dr. Dist. No. 1	Peninsula Drainage District No. 1	Columbia	3/9/01	E
Sandy River at Troutdale	City of Troutdale	Sandy	3/8/01	E
Tillamook County				
Sunset Drainage District	Sunset Drainage District	Nehalem	3/13/01	VG
McDonald Road Location	Tillamook County Department of Emergency Services	Nehalem	3/15/01	E
Wilson River (Hwy 101)	Tillamook County Department of Emergency Services	Wilson	3/15/01	E
West Makinster Road Location	Tillamook County Department of Emergency Services	Wilson	5/10/01	E
Stillwell Drainage District	Stillwell Drainage District	Tillamook/Trask	4/10/01	G
Tone Road	Tillamook County Department of Emergency Services	Trask	5/10/01	E
Beaver Creek	Tillamook County Department of Emergency Services	Beaver Cr	5/10/01	E
Pacific City	State of Oregon Aeronautics Division	Nestucca	5/8/01	G
Miami River	Tillamook County	Miami R	3/15/01	G
Umatilla County				
Pendleton Zone 2 Levees	Umatilla River Water Control District No	Umatilla	6/12/01	E
Pendleton Levee Zone 1	City of Pendleton	Umatilla	6/13/01	E
Simon Springs	City of Pendleton	Umatilla	6/12/01	E
Rattlesnake	City of Pendleton	Umatilla	6/12/01	E

TABLE 28-Q INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS
(Cont'd) (SEE SECTION 35 OF TEXT)

State/County/Location	Sponsor	River	Date of Last Inspection	Rating (1)
<u>State of Washington</u>				
Clark County				
Salmon Creek Location	Clark County	Salmon Cr	3/14/01	E
Washougal Area Levees	Port of Camas/Washougal	Columbia	8/2/01	E
Cowlitz County				
Port of Kalama	Port of Kalama	Columbia	9/14/01	E
Cowlitz Co Cons Dk Imp # 1	Cowlitz County Consolidated Diking Improv District No. 1	Cowlitz	4/13/01	E
Cowlitz Co Dr Imp # 1	Cowlitz County Drainage Improvement District No. 1	Columbia	6/14/01	E
Cowlitz Co Cons Dk Imp # 2	Cowlitz County Consolidated Diking Improv District No. 2	Lewis	6/13/01	E
Cowlitz Co Cons Dk Imp # 3	Cowlitz County Consolidated Diking Improv District No. 3	Cowlitz	6/14/01	E
Cowlitz Co Dk Impt # 15	Diking Improvement District No. 15 of Cowlitz County	Columbia	6/13/01	E
Castle Rock	City of Castle Rock	Cowlitz	3/14/01	E
Huntington Avenue Location	City of Castle Rock	Cowlitz	3/14/01	E
Lewis County				
Fulton Location	Lewis County Public Works Department	Cowlitz	5/8/01	E
Holder Location	Lewis County Public Works Department	Cowlitz	5/8/01	E
Kirkendoll Location	Lewis County Public Works Department	Cowlitz	5/8/01	E
Hopkins Creek Location	Lewis County Public Works Department	Cowlitz	5/8/01	E
Pacific County				
Megler Location	Washington State Department of Transportation	Columbia	8/28/01	E
Wahkiakum County				
Wahkiakum Co Cons Dk # 1	Consolidated Diking District No. 1 of Wahkiakum County	Columbia	3/6/01	E

Rating:

(1) E = Excellent VG = Very Good G = Good F = Fair P = Poor

SEATTLE, WASHINGTON DISTRICT

This District comprises Washington State except southern and southeastern portions, northern Idaho, and north-western Montana, embraced in drainage basins tributary to

Pacific Ocean south of international boundary to Cape Disappointment, and to the Columbia River above Yakima River, inclusively.

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Environmental

Navigation

1. BELLINGHAM HARBOR, WA

Location. Part of Bellingham Bay, an arm of Puget Sound, at Bellingham, in northwestern Washington. (See NOAA Survey Chart 18424.)

Existing project. Channel 30 feet deep in Whatcom Creek Waterway from deep water to head of harbor, 363.2 feet wide to 750 feet from inner end, thence 18 feet deep for inner 750 feet; I&J Street Waterway, a channel 100 feet wide and 18 feet deep at mean lower low water for a distance of 3,200 feet; Squalicum Creek Waterway, including dredging an entrance channel 200 feet wide and 26 feet deep from deep water in the bay to main pierhead line, and maintenance of southerly half and westerly end of Squalicum Creek basin to 26 feet deep, provided that no dredging can be done within 75 feet of wharves, piers, or similar structures; and small-boat basin adjacent to Squalicum Creek Waterway by construction and maintenance of two sections of rubblemound breakwater with combined length of 5,400 feet, including maintenance of minimum depths of 12 feet in entrance to basin. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 8.6 feet. Extreme range is about 16 feet. The small-boat basin expansion from 3,900 feet to 5,400 feet at Squalicum Creek Waterway and channel at I&J Street Waterway were constructed under authority of Section 107, P.L. 86-645. Construction costs for these features are recorded in Table 29-C. Project was completed in October 1980. (For further details see Annual Report for 1981. For details relating to previous project see page 797 of Annual Report for 1907.)

Local cooperation. Fully complied with. Requirements are described in full on page 38-2 of FY 1980 Annual Report.

Terminal facilities. Of the 40 wharves and piers in Bellingham Harbor, 9 are on Whatcom Creek Waterway, 3 on Squalicum Creek Waterway, 3 on I&J Street Waterway, and 9 on Bellingham Bay. Two wharves on Whatcom Creek Waterway serve general cargo terminals. One is publicly owned and operated and is suitable for use by ocean-going vessels; the other one is privately owned and operated. There is one publicly owned terminal and small-boat harbor with 11 wharves handling private craft and fishing boats. (See Port Series No.37 – Ports of Port Angeles, Port Townsend, Everett, Anacortes, and Bellingham, WA, revised 1987.)

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted. Prepared plans and specifications for maintenance dredging and awarded contract. Supervised contract work.

Maintenance, contract: Clamshell maintenance dredging of 10,643 cy was performed to remove the most critical shoal on Squalicum Waterway at a cost of \$72,904. The clean dredged materials were rehandled to a nearshore Model Toxics Control

Act (MTCA) cleanup, contractor-furnished disposal site. Additional rehandling costs were provided by the Georgia-Pacific Corporation. Multi-year (FY 2001-05) coordination of Federal maintenance was continued in efforts to identify additional beneficial uses for the clean dredged materials.

2. BLAIR WATERWAY, TACOMA, WA

Location. The waterway is located within the Port of Tacoma on Commencement Bay in south Puget Sound in the northeast section of Tacoma, approximately 30 miles south of Seattle, WA.

Existing project. Improvement consists of modifying 2.6 miles of the existing Federal navigation project for the Blair Waterway by deepening the channel and turning basin to -51 feet mean lower low water – this to accommodate state-of-the-art, post Panamax container ships. Project was physically completed in FY 2001 with final fiscal requirements remaining.

Local cooperation. Under current cost sharing requirements, the local sponsor (Port of Tacoma) will provide 50% of the costs allocated to the general navigation during construction and an additional 10% upon project completion. Concurrent with subject project, the contractor will dredge berth areas at 100% sponsor cost. A Project Cooperation Agreement (PCA) was signed on September 10, 1999.

Terminal facilities. There are many terminal facilities located in Tacoma Harbor which is comprised of Commencement Bay and its waterways. The Blair and Sitcum Waterways provide the primary container ship facilities for the Port of Tacoma.

Operations during fiscal year. New work, hired labor: Supervised dredging contract.

New work, contract: Dredging contract was completed.

3. EVERETT HARBOR AND SNOHOMISH RIVER, WA

Location. On Port Gardner Bay, at northern end of Possession Sound, an arm of Puget Sound at Everett, in northwestern Washington; and Snohomish River for 6.3 miles above mouth. (See NOAA Survey Chart 18444.)

Existing project. Training dike extending from a point opposite 23rd Street northward 12,550 feet to outlet of Snohomish River, with spur dike extending 400 feet to pierhead line from north end of main dike; spur dike extending 1,410 feet westward from Preston Point; removal of a section of training dike north of Snohomish River outlet; channel 150 to 425 feet wide and 15 feet deep from deep water in Port Gardner Bay to 14th Street dock; thence a settling basin 700 feet wide, 1,200 feet long, and 20 feet deep,

SEATTLE, WASHINGTON DISTRICT

thence a channel 150 feet wide and 8 feet deep upriver to head of Steamboat Slough, a total distance of about 6.3 miles; settling basin within upper channel reach about 1 mile long with a capacity of 1 million cubic yards and maintaining East Waterway to 30 feet deep. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.1 feet. Extreme tidal range is about 19 feet. Project was completed in April 1963. (For further details, see page 1683 of Annual Report for 1963. For details relating to previous projects, see page 704 of Annual Report for 1905, page 2005 of Annual Report for 1915, and page 1883 of Annual Report for 1938.)

Local cooperation. Fully complied with. Requirements are described in full on page 38-3 of FY 1981 Annual Report.

Terminal facilities. There are 42 piers and wharves in the Port of Everett, 17 in Port Gardner and 25 on the Snohomish River. These include: 19 publicly owned terminals with 4 berths handling ocean-going vessels and 1 publicly owned terminal and small-boat basin handling fishing and pleasure craft. A portion of the East Waterway has been deepened and modified by the U.S. Navy for a Homeport. (See Port Series No. 37 - Ports of Port Angeles, Port Townsend, Everett, Anacortes, and Bellingham, WA, revised 1987.)

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted throughout the year. Prepared plans and specifications for maintenance dredging and awarded contract. Supervised contract work. Coordination with the U.S. Fish and Wildlife Service (USFWS), National Marine Fishery Service (NMFS), and the Port of Everett continued with regard to pipeline dredging and Endangered Species Act (ESA) concerns about bull trout.

Maintenance, contract: A contract for clamshell maintenance dredging was awarded and completed. Dredging of the downstream settling basin resulted in 270,000 cy of shoal material being removed at a cost of \$728,000. 21,183 cy of the material was rehandled from the dredge contractor's deck barge for truck haul with disposal at the Port of Everett's riverside redevelopment site.

4. FRIDAY HARBOR, WA

Location. Friday Harbor is located on the eastern shore of San Juan Island on the inland waters of northwestern Washington, about 28 nautical miles east of Victoria, British Columbia, and 60 nautical miles north of Seattle, WA. San Juan Island is one of over 170 islands in the San Juan Archipelago. Friday Harbor is the San Juan Island county seat and a United States Customs Port of Entry. (See NOAA Survey Chart 18425.)

Existing project. Concrete floating breakwater (1,600 feet) to protect the existing port facilities and to allow the Port of Friday Harbor to provide 294 additional permanent moorage

spaces and 44 additional transient spaces. Construction was completed in March 1984.

Local cooperation. Fully complied with. Requirements are described in full on page 38-4 of FY 1981 Annual Report.

Operations during fiscal year. Maintenance, hired labor: Routine coordination with the Port of Friday Harbor, U.S. Coast Guard, and navigation users. Twenty of the most deteriorated anchor chains of the anchorage system for the concrete floating breakwater were replaced under the supervision of the Naval Facilities Engineering Service Center (NFESC). Total cost was \$302,780 and included repairs to spalled and damaged concrete surfaces and safety hand railings.

Maintenance, contract: None.

5. GRAYS HARBOR AND CHEHALIS RIVER, WA

Location. Harbor lies at mouth of Chehalis River, in southwestern part of Washington, 45 miles north of entrance to Columbia River. Chehalis River rises in southwestern part of Washington about 40 miles east of Pacific Ocean, flows generally northwesterly and empties into eastern part of Grays Harbor. (See NOAA Survey Chart 18502.)

Existing project (including navigation improvements to date). Provides for an entrance channel across the bar and through entrance 600 to 1000 feet wide and 38 to 46 feet deep, to be secured by a south jetty 13,734 feet long and a north jetty 17,200 feet long, and by dredging; maintenance of channel 36 feet deep and 350 feet wide from deep water in Grays Harbor 14 miles to Cow Point; thence 30 feet deep and 200 feet wide, suitably widened at bends, to a point 13,700 feet upstream from Union Pacific Railroad bridge at Aberdeen, a distance of 4.125 miles; a turning basin 30 feet deep, 550 feet wide, and 1,000 feet long at upstream end of 30-foot channel near Cosmopolis; three breakwaters at, and maintenance of entrance channel to Westhaven Cove; protection of Point Chehalis for an exposed length of about 7,500 feet; and removal of 350-foot southwestern extension of the breakwater, replacing it with an 865-foot northeastern extension, and adding a 200-foot spur breakwater along the southerly entrance, constructed under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 8.9 feet at Point Chehalis, 10.1 feet at Aberdeen, and 8.1 feet at Montesano. Extreme range is 17.5 feet at Point Chehalis, 17.8 feet at Aberdeen, and 23.8 feet at Montesano (river flood of 1935). (For details relating to previous projects, see pages 2002-03 of Annual Report for 1915 and page 1863 of Annual Report for 1938.)

Improved project. Authorized by Section 202 of the Water Resources Development Act of 1986. Project construction was

started in April 1990. Completed project features are: deepen and widen 20 miles of existing 30-foot channel across ocean bar (46 feet deep and 1,000 feet wide), through the harbor entrance (46-38 feet deep and 1,000-600 feet wide), through South to Cow Point Reaches (36 feet deep and 350 feet wide); expand and deepen Cow Point and Junction City turning basins; deepen two downstream local berths; construct fish and initial crab mitigation; deepen last four miles of upstream existing 30-foot channel to 32 feet; and expand Cow Point another 50 feet to accommodate large cruise vessels. Modification of Union Pacific Railroad bridge was deleted from project scope in 1995. Construction of final crab mitigation, the last remaining project feature, was completed in FY 2000. Improved project is complete, with final fiscal requirements remaining.

Local cooperation. Fully complied with. Local Cooperation Agreement with Port of Grays Harbor, local sponsor for improvement project, was executed on February 16, 1990. The Port is contributing 35 per cent of improved project cost. In complying with terms of local cooperation, the Port is required to furnish lands and diked disposal areas and assure relocation of utility lines.

Terminal facilities. There are 20 waterfront facilities (piers, wharves, and docks), exclusive of those available to recreational craft, at Grays Harbor, of which 5 are publicly owned. In foreign and domestic trade, they serve various purposes which include the receipt and/or shipment of: logs and lumber, paper, wood pulp, aluminum ingots, granite, other break bulk commodities, woodchips, conventional general cargo, seafood and fishing supplies, sand and gravel, and construction materials. Other uses include: mooring and icing fishing boats, mooring small vessels for outfitting and repair, and mooring company owned tugs. Those piers operated by the U.S. Coast Guard moor government owned vessels.

Operations during fiscal year. New work, hired labor: Coordinated with Port of Grays Harbor (local sponsor), resource agencies, and Grays Harbor pilots.

Maintenance, hired labor: Channel condition surveys were conducted throughout the year. The Corps hopper dredges Essayons and Yaquina dredged in the Entrance and Bar Channels, removing 586,170 cy at a cost of \$1,980,000. Dredged material was placed at South Jetty disposal site except for 227,297 cy placed at the 3.9 mile, southwest site. Continued O&M navigation program study of submerged spur off end of North Jetty. Crab mitigation sites were surveyed for juvenile crab to determine mitigation credit. Plans and specifications were prepared for maintenance dredging. Supervised contract work.

Maintenance, contract: Maintenance dredging of the outer harbor by clamshell and hopper dredge was completed at a cost of \$1,051,242 with 373,272 cy of material being removed and placed at the Pt. Chehalis disposal site. A continuing contract was awarded to perform maintenance of

approximately 2,800 feet of degraded North Jetty. Total contract cost is \$3,449,000 with completion in FY 2002. Contract amendment for optional items was awarded for South Jetty rehabilitation with completion in FY 2003.

6. LAKE CROCKETT, WA

Location. The harbor is on the west side of Whidbey Island, about 35 nautical miles north of Seattle, WA. The lake lies parallel to Admiralty Bay and is separated from it by a narrow strip of gravel beach. (See NOAA Survey Chart 18441).

Existing project. Provides for a basin in Lake Crockett with an area of about 6 acres and 25 feet deep at mean lower low water, connected with Admiralty Bay by a channel of the same depth and 200 feet wide, protected by a breakwater; and navigation improvement by dredging, constructed under authority of Section 107, P.L. 86-645. Construction cost for this feature is recorded in Table 29-C (Keystone Harbor, Admiralty Inlet). The diurnal tidal range in Admiralty Bay is 8.4 feet and the extreme range is about 16.5 feet. Project was completed in March 1993. (For further details, see Annual Report for 1993.) Recreational facilities at project under cost-sharing agreement with Washington State Parks and Recreation Commission include the following construction and improvements: construct a 35-unit camping loop and restroom, new boat ramp handling facility, breakwater, a restroom in the day-use area and porto-potti dumps for boats; and expand day-use facility and add rip-rap at the construction site.

Local cooperation. None required.

Terminal facilities. One publicly owned passenger and automobile ferry landing within the dredged basin is open for public use, and is adequate for existing commercial traffic. The basin contains two publicly owned boat ramps open for public use. The ramps are adequate for recreational craft.

Operations during fiscal year. Maintenance, hired labor: Channel condition surveys were conducted during the year.

Maintenance, contract: None.

7. LAKE WASHINGTON SHIP CANAL, WA

Location. Entirely within city of Seattle and extends from Puget Sound through Shilshole Bay, Salmon Bay, Lake Union, Portage Bay, and Union Bay to deep water in Lake Washington. (See NOAA Survey Chart 18447.)

Existing project. Provides for a double lock and fixed dam from gated spillway and necessary accessory works, including fishladder, at the Narrows at entrance to Salmon Bay, about 1.25 miles from deep water in Puget Sound; for a channel 34 feet deep and 300 feet wide from Puget Sound to Burlington Northern Railway bridge, about 5,500 feet, with a passing basin 34 feet deep and log basin 8 feet deep at turn below

railway bridge; then 34 feet deep and 150 feet to 200 feet wide to locks, about 900 feet; and a guide pier 600 feet long; for revetment of canal banks between locks and Lake Union and between Lakes Union and Washington; and for a channel 30 feet deep with a width of 100 feet from locks to Lake Union, 200 feet thence to Portage Cut, 100 feet through Portage Cut, and thence 200 feet wide through Union Bay to Lake Washington. Section included in project is about 10 miles long. Plane of reference is mean lower low water. Extreme tidal range is 19.3 feet. Range between mean lower low water and mean higher high water is 11.3 feet, and between mean lower low water and extreme low water is 4.6 feet. Ordinary fluctuation in upper pool is 24 inches; extreme fluctuation has been 3.6 feet. Principal features of double lock and dam are set forth in Table 29-K. Project was completed in 1934. (For further details, see Annual Report for 1935. For details relating to previous projects, see page 2003 of Annual Report for 1915, and page 1880 of Annual Report for 1938.)

Local cooperation. Fully complied with.

Terminal facilities. The 18 waterfront facilities at Lake Washington Ship Canal are used for fuel oil, seafood, marine repair, drydocking, outfitting, mooring fishing vessels and repairs to the locks' equipment. Project is a part of Seattle Harbor's inner harbor. (See Port Series No. 36, revised 1993.)

Operations during fiscal year. Maintenance, hired labor: Locks were operated and maintained all year, conducting 16,574 lockings, passing 9,756 commercial vessels, 49,817 pleasure vessels, and 1,090,100 tons of commerce. The fishladder passed more than 335,000 fish and there were 1,513,391 project visitors. Initiated plans and specifications for stoney gate valve rehabilitation and completed design for project road electrical upgrade.

Maintenance, contract: Contract for upgrade of the large lock gate machinery continued. Contract for project pumpwell rehabilitation was completed. Contract for small lock guard gate was initiated.

8. NEAH BAY, WA

Location. On south side of the Strait of Juan de Fuca, about 6 miles east of Cape Flattery, at the entrance to the Strait from the Pacific Ocean, and about 60 miles west of Port Angeles, WA. (See NOAA Survey Charts 18480, 18484 and 18485.)

Existing project. Provides for a rubblestone breakwater about 8,000 feet long between Waada Island and the westerly shore of the bay, reinforcement of existing rock revetment extending approximately 2,200 feet west from Baada Point, and about an 800-foot extension of the revetment westward. Tidal range between mean lower low water and mean higher high water is 8.2 feet. Project was completed in July 1956. (For further details, see Annual Report for 1957.)

Local cooperation. Fully complied with.

Terminal facilities. There are six wharves at Neah Bay, including two owned by the United States which are used by the Coast Guard, and four privately owned wharves, three of which are open to general public use to accommodate small commercial fishing vessels. In addition to the wharves, there is a facility for dumping and rafting logs. Facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: Continued monitoring of survey for evaluation of shoaling and clam bed nourishment in boat basin breakwater.

Maintenance, contract: Excavated 14,000 cy of material from the fish gap and transported the sand to the up-drift beach for clam bed restoration at a cost of \$39,619.

9. PROJECT CONDITION SURVEYS

Hydrographic surveys and inspections to determine navigation conditions at boat basins, small navigation projects, and channels not funded on a project basis for the current fiscal year. Soundings and visual inspections in subject areas are conducted in order to evaluate shoaling conditions. Hydrographic charts are prepared and distributed. Fiscal year costs were \$304,623. Total costs to date are \$4,707,120.

SURVEYS CONDUCTED

Anacortes Harbor, WA	April 2001
Kenmore Navigation Channel, WA	June 2001

10. PUGET SOUND AND ITS TRIBUTARY WATERS, WA

Location. Puget Sound is in the western part of Washington. Cities of Seattle, Tacoma, Olympia, Everett, Bellingham, and many small towns are on its bays and inlets. (See NOAA Survey Charts 18440, 18441, and 18448.)

Existing project. Maintenance of Puget Sound and its tributary waters by snagging and dredging; and removal, in cooperation with the U.S. Coast Guard and city of Seattle, of floating debris from the Seattle Harbor area. Work consists of collecting large pieces of drift, waterlogged pilings, logs and other debris considered hazardous to navigation from Puget Sound and federally authorized channels. (For details relating to previous projects, see page 2003 of Annual Report for 1915 and page 1869 of Annual Report for 1938.)

Local cooperation. None required. Cities of Seattle, Tacoma, Olympia, Everett and Bellingham and the State of Washington are cooperating in a program for control of floating debris in their harbors and setting up collection sites for our debris vessel.

Terminal facilities. Terminal facilities at numerous localities on Puget Sound and its tributary waters are, in general, considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: The debris vessel Puget operated continuously throughout Puget Sound and its tributary waters and removed approximately 2,700 tons of floating debris and hazards to navigation. Debris was disposed of locally or loaded aboard barges and disposed of by contract. Snagging operations were accomplished at Blaine Harbor, Bellingham Harbor, Swinomish Channel, Skagit River, Everett Harbor, Snohomish River (upstream to town of Snohomish), Lake Washington Ship Canal, Lake Washington, Tacoma Harbor, Olympia Harbor, Duwamish River, and Elliott Bay.

Maintenance, contract: One thousand tons of harbor debris were disposed of at a cost of \$90,000. Contractor continues to recycle much of the debris, reducing the cost of disposal by contract. Remainder of debris is placed in a demolition landfill or recycled through other government agencies.

11. QUILLAYUTE RIVER, WA

Location. River is formed by junction of Soleduck and Bogachiel Rivers, in northwestern Washington, and flows westerly 5 miles to Pacific Ocean at La Push, about 30 miles south of Cape Flattery. (See NOAA Survey Chart 18480.)

Existing project. Provides for: jetty 15 feet high on easterly side of river mouth and a dike on westerly side, with a view of stabilizing entrance; channel 10 feet deep and 100 feet wide extending 2,000 feet upstream from deep water; basin 10 feet deep, 300 to 425 feet wide, and 2,400 feet long upstream of channel; and, maintenance of an ocean spit. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water at La Push is 8.3 feet. Extreme range is about 15 feet. The spit is nourished with dredged material in conjunction with channel dredging. The spit was rehabilitated with quarry rock in 1974, in 1979-80, and in 1982; in addition, a 500-foot breakwater section paralleling the channel and extending the spit was constructed. In 1995, the revetment on the downstream end of the ocean spit was extended 200 feet. In 1996, after the river breached the natural spit, the revetment on the ocean spit was extended approximately 1,700 feet to the north and the boat basin training wall was raised from elevation +9.0 to elevation +16.0 - all under O&M authority. Project was completed in February 1997.

Local cooperation. Fully complied with.

Terminal facilities. There is one Quileute Tribe-owned dock at La Push, near the mouth of the Quillayute River. There is also a protected boat basin owned by the Quileute Tribe Port Authority which is used by fishing boats, pleasure craft, and the Coast Guard, which has a separate pier.

Operations during fiscal year. Maintenance, hired labor: Condition surveys were made of the river channel. Prepared plans and specifications for contract work. Advertised and awarded a jetty repair contract.

Maintenance, contract: A continuing contract for jetty repair was awarded. Funds in the amount of \$44,964 were used in the current FY. Approximately 30,000 tons of armour rock will be placed to complete repairs.

12. SEATTLE HARBOR, WA

Location. Harbor at Seattle, WA, includes all waterways within city limits. Chief anchorage basin is Elliott Bay, an arm of Puget Sound. (See NOAA Survey Chart 18450.)

Existing project. Maintenance of East and West Waterways, 34 feet deep and 750 feet wide for 6,500 and 5,200 feet, respectively, from pierhead line in Elliott Bay, the 30-foot by 200-foot wide channel from West Waterway to 1st Avenue South Bridge, and the 20-foot by 150-foot-wide channel from 1st Avenue South Bridge to 8th Avenue; dredging Duwamish Waterway 150 feet by 15 feet from 8th Avenue to a point about 1.4 miles above 14th Avenue South Bridge, and turning basin 500 by 250 feet and 15 feet deep at the upper end of the waterway; maintenance of East Waterway between upper end of 750-foot section and Spokane Street, 34 feet deep, 700 feet long and 400 feet wide, and a turning basin, including head of East Waterway at junction of waterways south of Chicago, Milwaukee, St. Paul & Pacific Railroad bridge, to 30 feet deep, after these sections of waterway are dredged by local interests to full project dimensions. Total length of all waterways included in project is about 7.5 miles. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.3 feet. Extreme tidal range is 19.3 feet. Project was completed in 1931, excluding maintenance of East Waterway above the 750-foot section. Turning basin, constructed under authority of R&H Act of Mar. 3, 1925, in 20-foot deep waterway was deauthorized by P.L. 99-662 dated Nov. 17, 1986. (For further details, see Annual Report for 1932.)

Local cooperation. Fully complied with. Local sponsor has no maintenance responsibility.

Terminal facilities. There are 203 piers, wharves, and docks located on the inner and outer harbors at Seattle, WA. Salmon Bay, Lake Union, Portage Bay and Lake Washington form the inner harbor; Elliott Bay and East, West and Duwamish Waterways form the outer harbor. (Lake Washington Ship Canal, a part of the inner harbor, is a separate project in this report.) These terminals serve a variety of purposes which include cargo handling, bunkering vessels, ferry service (vehicular, passenger and rail car), marine repair/ outfitting/ drydocking/ conversion, shipbuilding, handling supplies and equipment, and mooring company owned equipment, excursion vessels, fire boats, fishing vessels, government equipment, harbor craft/tugs, and oceanographic research vessels. The numerous waterfront facilities in the port used exclusively by recreational craft are not included. (See Port Series No. 36, revised 1993.)

Operations during fiscal year. Maintenance, hired labor: Condition surveys were made of channels. Plans and specifications and required environmental coordination were completed in preparation for a FY 2002 maintenance dredging contract. Continued coordination with the Environmental Protection Agency on the Superfund listing of the Duwamish Waterway at Seattle Harbor.

Maintenance, contract: None.

13. SWINOMISH CHANNEL, WA

Location. An inland passage, 11 miles long, between Saratoga Passage and Padilla Bay, in northwestern part of Washington, about 60 miles north of Seattle. (See NOAA Survey Charts 18400, 18427 and 18421.)

Existing project. A channel 100 feet wide and 12 feet deep for 11 miles from deep water in Saratoga Passage to deep water in Padilla Bay, by dredging and dike construction where necessary; and removal of protecting rocky points of McGlinn and Fidalgo Islands obstructing navigation at "Hole-in-the-Wall". Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.5 feet at south end of channel, 8.4 feet at north end, and 10 feet at La Conner. Extreme tidal range is about 19.5 feet at south end of channel and about 16 feet at north end. Project was completed in March 1965. (For further details, see Annual Report for 1965.)

Local cooperation. Fully complied with.

Terminal facilities. There are 18 wharves, docks, and piers on Swinomish Channel, all but 3 of which are privately owned. Of these, one is used for handling general cargo; five are used exclusively for moorage, unloading and servicing of fishing vessels; two are used for handling petroleum products; three facilities are used for log dumps; and two for handling non-metallic minerals. Three publicly owned facilities for launching, mooring, and servicing small craft are within the city limits of La Conner.

Operations during fiscal year. Maintenance, hired labor: Maintained project coordination with Port of Skagit County, Port of Anacortes, U.S. Coast Guard, and navigation users. Channel condition surveys were conducted. Prepared plans and specifications for clamshell dredging and supervised the contract.

Maintenance, contract: Completed contract to clamshell dredge shoal material. 34,685 cy were removed at a cost of \$210,952. The dredged material was rehandled to a contractor-furnished, remediation clean up pilot capping project in Bellingham Harbor.

14. TACOMA HARBOR, WA

Location. Harbor includes Commencement Bay and tributary waterways at Tacoma, in northwestern Washington. (See NOAA Survey Chart 18453.)

Existing project. Provides for: (a) channel in City Waterway 500 feet wide and 29 feet deep from deep water in Commencement Bay to 11th Street Bridge, 500 feet wide and 22 feet deep to 14th Street Bridge, and varying from 500 to 250 feet wide and 19 feet deep from 14th Street Bridge to end of this waterway, a total length of 8,500 feet; (b) channel in Hylebos Waterway 30 feet deep, 3.1 miles long, and 200 feet wide except where width is increased to 250 feet at the bend below East 11th Street, to 300 feet at Lincoln Avenue bend, and to 510 feet and 770 feet respectively, at the channel widening above Lincoln Avenue and the turning basin at the head of the waterway; (c) construction of two training walls, each about 700 feet long at mouth of Puyallup River; and (d) channel in Blair Waterway 2.6 miles long, including a portion seaward of East 11th Street, 650 feet wide and 30 feet deep over southerly 350 feet, and 35 feet deep over northerly 300 feet; and remaining portion, 35 feet deep and 150 feet wide at East 11th Street, 600 feet wide between East 11th Street and Lincoln Avenue, and 300 feet wide between Lincoln Avenue and a 1,200-foot wide turning basin at head of waterway. Plane of reference is mean lower low water. Range between mean lower low water and mean higher high water is 11.8 feet. Extreme tidal range is about 20 feet. Project was completed in December 1966. (For further details, see Annual Report for 1967. For details relating to previous projects, see pages 1372 to 1376 of Annual Report for 1934 and page 1875 of Annual Report for 1938 for Puyallup Waterway, and page 1702 of Annual Report for 1944 and page 1502 of Annual Report for 1954 for Blair (formerly Wapato and Port Industrial Waterway).

Local cooperation. Fully complied with.

Terminal facilities. There are 63 terminal facilities, exclusive of those available to recreational craft, located in Tacoma Harbor which is comprised of Commencement Bay and its many waterways. These facilities serve a variety of purposes which include cargo handling, fueling small vessels, ferry traffic, marine repair, conversion/outfitting, dry-docking, mooring, bunkering, ship-building and shipbreaking. (See Port Series No. 35 – Ports of Tacoma, Olympia, and Grays Harbor, WA, revised 1993.)

Operations during fiscal year. Maintenance, hired labor: In Blair Waterway, dragging operations removed a hump at a cost of \$18,990.

Maintenance, contract: None.

15. WILLAPA RIVER AND HARBOR AND NASELLE RIVER, WA

Location. Willapa Harbor consists of lower reaches of Willapa River and Bay, an inlet of Pacific Ocean about 30 miles north of mouth of Columbia River in Washington. Willapa River rises about 30 miles east of harbor, flows generally westerly, and empties into the bay. Naselle River enters the bay near its southerly end. (See NOAA Survey Chart 18504.)

Existing project. Provides for: channel over bar at mouth of Willapa Bay, 26 feet deep and at least 500 feet wide; channel 24 feet deep and 200 feet wide from deep water in Willapa Bay to foot of Ferry Street at South Bend, thence 300 feet wide to westerly end of narrows, thence 250 feet wide to forks of river at Raymond, including a cutoff channel 3,100 feet long at narrows and a closing dike at Mailboat Slough; channel 24 feet deep and 150 feet wide up south fork to deep basin above Cram Lumber Mill, and up north fork to 12th Street, with a turning basin 250 feet wide, 350 feet long, and 24 feet deep at latter point; channel 10 feet deep and 40 feet wide from deep water in Palix River to Bay Center dock, with widening at shoreward end to provide a small mooring basin; mooring basin 15 feet deep, 340 feet wide, and 540 feet long adjacent to port wharf at Tokeland; entrance channel at Nahcotta 10 feet deep and 200 feet wide, and mooring basin 10 feet deep, 500 feet wide, and 1,150 feet long, protected by a rubblemound breakwater about 1,500 feet long; and removal of snags, piles, and other obstructions in navigable channel of Naselle River between Naselle and mouth. Project includes about 26 miles of channel from entrance through Willapa River forks, 2,800 feet of Palix River-Bay Center channel, and 9 miles of Naselle River upstream of U.S. Highway 101 Bridge. Plane of reference is mean lower low water. Tidal range between mean lower low water and mean higher high water is 8.9 feet at Toke Point, 9.9 feet at Raymond, 8.9 feet at Bay Center, and 10.8 feet near Naselle. Extreme range is 18 feet at Toke Point, 19.3 feet at Raymond, 16 feet at Bay Center, and 18 feet near Naselle. Project was completed in November 1958. (For further details, see Annual Report for 1959. For details relating to previous projects, see page 968 of Annual Report for 1910, page 2001 of Annual Report for 1915, and page 1861 of Annual Report for 1938.)

Local cooperation. Fully complied with.

Terminal facilities. There are 24 wharves on Willapa River and Harbor, including 5 in Willapa Bay, 4 in Bay Center, 12 in Raymond and South Bend, and 1 in Tokeland. Two of the wharves at Raymond and South Bend are suitable for use by ocean-going vessels. One of these is publicly owned and operated as a general cargo terminal, and one is located at a sawmill. The other wharves, including three which are publicly owned and operated, are used by shallow-draft vessels. These facilities are considered adequate for existing commerce.

Operations during fiscal year. Maintenance, hired labor: Frequent condition surveys on the Willapa bar channel were performed at the request of the U.S. Coast Guard. The alignment of the Willapa bar thalweg continues to be a concern for safe navigation. Phase II of technical studies at Willapa Bay were continued to determine if a safe, reliable bar navigation channel is feasible. Monitored results of dredging at the Bay Center Entrance Channel and completed required coordination for maintenance dredging at the Bay Center Channel.

Maintenance, contract: Awarded a clamshell maintenance dredging contract for the Bay Center Channel.

Navigation activities pursuant to Section 107, Public Law 86-645 (preauthorization).

Fiscal year costs were: Entrance Channel Improvements, Neah Bay, WA, \$13,767; Ocean Shores Marina, WA, \$57,279; Section 107 Coordination, \$11,014, a total of \$82,060.

Shore Protection

16. LINCOLN PARK BEACH, SEATTLE, WA

Location. Project is located within the city of Seattle, at Williams Point, and adjacent to the East Passage of Puget Sound. (See NOAA Survey Chart 18449.)

Existing project. Initial beach nourishment consisted of the placement of 34,000 tons of sand, gravel, and cobble fill seaward of the existing seawall, a distance of 2,300 feet along the southwest beach. Two hundred fifty feet of rock revetment, at Williams Point, consisting of 2 layers of 1,500-pound to 4,000-pound armor rock were placed on a 2-foot thick filter bed of quarry spalls. The revetment is fronted by 2,000 tons of gravel and cobble fill, with the same top elevation, slope and seaward extent as the beach nourishment on the southwest beach. Periodic beach nourishment, consisting of placement of beach material to replenish the erosion loss approximately every 5 years, is an authorized part of the construction project. Monitoring of beach nourishment consists of initial and periodic profile surveys, estimates of alongshore/offshore volumes of material, periodic beach sediment sampling, and pre- and post- construction environmental monitoring. Initial construction was completed in December 1988. The first periodic nourishment was performed during September-November 1994.

Local cooperation. Fully complied with. Requirements are described in full on page 29-8 of FY 1997 Annual Report.

Operations during fiscal year. New work, hired labor: Surveyed lower beach and determined new renourishment was necessary for portion of beach. Plans and specifications

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were initiated, with construction anticipated for fall months of 2002. This will be the second periodic nourishment activity.

Shore protection activities pursuant to Section 103, Public Law 874, 87th Congress, as amended (preauthorization).

Fiscal year costs were: Shoalwater Bay, Tokeland, WA, \$-2,927.

Flood Control

17. CEDAR RIVER, RENTON, WA

Location. Project is located along the lower 1 1/4 miles of the Cedar River in the city of Renton, King County, WA, immediately southeast of the city of Seattle.

Existing project. Dredging of the lower river channel approximately four feet from the mouth upstream to Logan Avenue bridge (one mile), gradually decreasing the slope upstream another 1/2 mile to meet the existing grade. Raise levees and floodwalls along both banks from the mouth to Williams Avenue 1 1/4 miles to contain the 100 year flood just prior to dredging. The interval for maintenance dredging will be approximately 3 years on average. Project has been completed, with final fiscal requirements remaining.

Local cooperation. Fully complied with. Requirements are described in full on page 29-8 of FY 2000 Annual Report.

Operations during fiscal year. New work, hired labor: Supervised contract work.

New work, contract: Contract for landscaping was completed.

18. HOWARD A. HANSON DAM, WA

Location. Green River, in northwestern Washington, flows westerly for 40 miles to Auburn, thence northerly 32 miles to its mouth in Elliott Bay at Seattle. Dam is at river mile 64, 6 miles southeast of Kanaskat, and 1 mile downstream from mouth of north fork. (See Geological Survey topographic sheet, "Cedar Lake Quadrangle, WA".)

Existing project. Rockfill dam about 235 feet high, with gated spillway having a concrete weir at elevation 1,176 feet above mean sea level and top of gates at elevation 1,206, creating a reservoir with capacity of 106,000 acre-feet. Dam along crest is about 675 feet long. Project is designed to control flooding in Green River Valley to alleviate agricultural and urban flood damage, and make possible further expansion of Seattle industrial area. It also supplements Tacoma water supply which was included as a betterment. Project was

completed in June 1963. (For further details, see Annual Report for 1963.) Under the dam safety assurance program, the reservoir outlet control tower and bridge were strengthened to withstand the maximum, credible earthquake. Work was completed in FY 1998.

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Operation continued all year. Routine maintenance was accomplished on roads, gages, debris booms, ditches, powerline, and other project features. Stilling basin inspection was accomplished. Work continued on water quality and sediment surveys.

Maintenance, contract: None.

19. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Inspections are made of federally constructed local flood protection projects which are maintained by local interests, and agencies responsible for their operation and maintenance are advised of any needed repairs. During the fiscal year inspections were made on Chehalis River at Aberdeen, Dungeness River at Dungeness, Green River at Tukwila and Kent, Lummi Shore at Bellingham, Okanogan River at Omak and Oroville, Sammamish River at Redmond, Shelton Creek at Shelton, Skykomish and Wallace Rivers at Startup, Swinomish Channel at LaConner, American Lake, Wynoochee Dam and Yakima River at Yakima in Washington State; Lightning Creek at Clark Fork, Placer Creek at Wallace, Coeur d'Alene River at Coeur d'Alene, and St. Joe River at St. Maries in Idaho; and Clark Fork River at Missoula in Montana. Fiscal year costs were \$140,608. Total costs to date have been \$2,192,219.

20. LONG ROAD, CHEHALIS RIVER, WA

Location. The project is within Lewis County, Washington, immediately south of the city of Centralia. The levee ties into the Interstate Highway 5 embankment near milepost 81.

Existing project. The project is a reverse L-shaped levee which includes an 800-foot-long east-west segment extending from the Interstate Highway 5 embankment across a field to the edge of an intermittent wetland. From there it bends north for a 1,300-foot-long north-south segment which parallels the Tacoma Eastern Railroad embankment to tie into high ground at South Street. Levee protection is limited to approximately the 35-to-40-year events. The project was completed in FY 2001, with final fiscal requirements remaining.

Local cooperation. Fully complied with. Requirements are described in full on page 29-8 of FY 2000 Annual Report.

Operations during fiscal year. New work, hired labor. Supervised contract work. Prepared O&M manual.

New work, contract: Completed construction contract.

21. MILO CREEK, KELLOGG, ID

Location. Project is contained in wooden culverts through the town of Kellogg, ID, where the creek flows into the south fork of the Coeur d'Alene River, approximately 55 miles east of Spokane, WA.

Existing project. The creek water is polluted with mine wastes (heavy metals) found throughout the Bunker Hill Superfund site. In May 1997, a portion of the old system was destroyed during a relatively small flood event. There was severe road damage, as well as substantial flood fighting costs and significant damage to residential structures. Responding to this emergency, a project similar in concept to that which the Corps had envisioned in a Section 205 effort terminated in its feasibility stage in 1997, was initiated in 1998 using funds from several Federal and State agencies. The project was completed in the year 2000. In Section 317 of WRDA 1999, the Corps was directed to reimburse the State of Idaho for 65% of the cost of the third and lowest portion of the project. Funds were appropriated by Congress in FY 2001.

Local cooperation. See discussion above.

Operations during fiscal year. New work, hired labor: None.

New work, contract: None.

22. MUD MOUNTAIN DAM, WA

Location. On White River, principal tributary of Puyallup River, near Mud Mountain, 28 miles above its confluence with Puyallup River, and 38 miles above mouth of Puyallup River. Dam is 6 miles upstream and southeast of Enumclaw, in northwestern Washington, and 38 miles east of Tacoma. (See Geological Survey topographic sheet "Cedar Lake Quadrangle, Washington".)

Existing project (including dam safety assurance improvements to date). Rockfill dam, 700 feet long at crest elevation, rises 432 feet above bedrock. Reservoir has storage capacity of about 106,000 acre-feet. Flood control outlet works are in right abutment and permit an authorized, controlled discharge of 17,600 cubic feet per second through two concrete-lined tunnels, with a maximum capacity discharge of 21,500 cfs. Uncontrolled discharge over the spillway is maximum capacity for 245,000 cubic feet per second. Project affords flood protection to White and Puyallup River Valleys and protects Tacoma industrial district in conjunction with Puyallup River project at Tacoma against floods about 50 percent greater than maximum discharge of record. Original project was completed in June 1953. To date,

the Corps has constructed two vista areas, a picnic area, a wading pool, and playground adjacent to the project office, a reservoir access point for hunters and fishermen, and a 1,760-foot trail leading to the lower vista area. Installation of an approximately 400-foot-deep concrete cutoff wall in the core of the dam was completed in November 1990 under the major rehabilitation program. Under dam safety assurance, spillway walls were raised, the dam crest was heightened, river diversion facilities required for excavation for the new tower were completed, the 9-foot diameter and the 23-foot diameter tunnels were refurbished, and a new reservoir outlet tower was constructed.

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Project features were operated all year. Maintenance was accomplished on dam facilities, intake structure, gages, debris booms, power lines, roads, ditches, hiking trails, vista observation deck, recreation area, and fish facilities. Approximately 12,652 fish were transported from the fish collection facility to the upstream release point. Project staff continues to partially renovate the 40-year-old administration building.

Maintenance, contract: Installation of a wading pool was completed under contract.

Dam Safety Assurance. New work, hired labor: Study is on-going to identify problem areas with the new dam safety features.

New work, contract: Construction was initiated for right bank stabilization.

23. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Flood control storage space was available in Hungry Horse Reservoir, MT, Flathead Lake, MT (controlled by Kerr Dam), Grand Coulee project, WA, Wynoochee Dam, WA, Upper Baker and Ross Reservoirs, WA. Issues relating to project operations were addressed. Regulation instructions were provided for flood control operations. Guidance forecasts were made during the flood control season, as required. Daily and/or hourly data were collected and tabulated as required to check compliance with operating criteria. Coordination necessary in preparation or revision of reservoir regulation manuals was carried on during the year with agencies responsible for the operation of these projects. Fiscal year costs were \$388,974. Total costs to date have been \$6,568,644.

24. STILLAGUAMISH RIVER, WA

Location. Formed by confluence of its north and south forks at Arlington, in northwestern Washington, Stillaguamish River flows westerly 22 miles to Puget Sound, entering Port

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Susan through Hat Slough and South Pass, and Skagit Bay through West Pass. (See NOAA Survey Chart 18441, and Geological Survey Quadrangles Stanwood, Marysville, and Stillaguamish, WA.)

Existing project. Works to reduce bank erosion and channel changes on Stillaguamish River 15 miles between Arlington and head of Hat Slough, and on Cook Slough, 3 miles long, as follows: revetment at 26 places on river and Cook Slough; concrete weir (including a fishway) 275 feet long between steel sheet pile piers at head of Cook Slough to limit flow through Slough; and two cutoff channels, each about 900 feet long, to eliminate sharp bends in Cook Slough. Tidal influence extends about 3 miles into improved section. Flood stages of 16 feet above low water at Cook Slough weir have been observed. Project was completed in July 1939. (For further details, see Annual Report for 1940.)

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Utilized in-house labor to supervise removal of brush from the entire project along slopes of levee. Re-set survey monuments for the entire project.

Maintenance, contract: Awarded equipment rental contracts to achieve removal of brush.

25. TACOMA, PUYALLUP RIVER, WA.

Location. Puyallup River has its source in glaciers on western slopes of Mount Rainier, flows northwesterly 50 miles, and empties into Commencement Bay, an arm of Puget Sound, at Tacoma, WA. Work covered by this project is on Puyallup River, within city limits of Tacoma. (See NOAA Survey Chart 18453.)

Existing project. A channel with a capacity of 50,000 cubic feet per second between East 11th Street Bridge and lower end of inter-county improvement, a distance of about 2.2 miles, by straightening channel, building levees, revetting channel and levees, and making necessary bridge changes. The 11th Street Bridge at lower end of project is 0.75 mile above mouth of Puyallup River. Diurnal tidal range at mouth of river is 11.8 feet and extreme range is 20 feet. Project was planned in conjunction with Mud Mountain Dam and affords protection against floods about 50 percent greater than maximum discharge of record. A real estate design memorandum, approved by Office of the Chief of Engineers on October 2, 1985, changed the project boundary to allow the Port of Tacoma to create a wetland adjacent to the project. This action resulted in the Corps acquiring approximately 2,450 linear feet of setback levee in fee simple. Maintenance funds to cover the increased length of the project have been provided by the Port of Tacoma for the project life. Project was completed in May 1950. (For further details, see Annual Report for 1950.)

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Utilized in-house labor to supervise removal of brush and noxious weeds from the entire project along slopes of levee. Coordinated annual clean-up with the Puyallup Indian Tribe and disposed of approximately 25 tons of trash.

Maintenance, contract: Awarded equipment rental contracts to achieve removal of brush and noxious weeds.

Flood control activities pursuant to Section 205, Public Law 858, 80th Congress, as amended (preauthorization).

See Table 29-L

Flood control activities pursuant to Section 14, Public Law 526, 79th Congress as amended (preauthorization).

See Table 29-M

Emergency flood control activities - repair, flood fighting, and rescue work (Public Law 99, 84th Congress, and antecedent legislation).

Fiscal year costs were \$1,891,628.

Multiple-Purpose Power Projects

26. ALBENI FALLS DAM, ID

Location. On Pend Oreille River about 25 miles west of Sandpoint, in northern Idaho, and 50 miles northeast of Spokane, WA. Dam is 838 and 90 miles upstream from mouths of Columbia and Pend Oreille Rivers, respectively. (See Geological Survey topographic sheets, Sandpoint, ID, and Newport, WA.)

Existing project. Provides flood control, hydroelectric power, and related water uses on Pend Oreille River as a part of the multiple-purpose plan for development of Columbia River Basin, including recreation development. At the dam, the river channel was formerly divided by an island and a low waterfall of about 7 feet. Dam is a gated, gravity-structure spillway in left channel and a powerhouse having an installation of 42,600 kilowatts in right channel, creating a reservoir with a usable storage capacity of 1,153,000 acre-feet. Project was operational and essentially complete in December 1955, with miscellaneous contracts completing by June 1957. (For further details, see Annual Report for 1957.) Recreational facilities for public use have been provided at Albeni Cove, Priest River, Riley Creek, Johnson Creek, Trestle Creek, Strongs Island, and Springy Point. (Strongs Island was closed in FY 1982 to reduce O&M costs.) (Refer to Albeni Falls Master Plan dated June 1981 for further planned development.)

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Reservoir was operated through its annual cycle of storage and release. Routine structural, mechanical, and electrical maintenance was performed on spillway, dam, powerhouse, and equipment. Flow sensing equipment was installed on one unit and equipment has been purchased for the two remaining units.

Maintenance, contract: Contracts completed included modernization for ADA compliance of four recreation campground restrooms, completion of visitor center basement interior, and installation of powerhouse smoke evacuation system. Replacement of the excitation system for all three generators was completed with funds provided by Bonneville Power Administration (Section 2406). Contracts awarded or continue include rehabilitation of trash hoist and construction of an equipment work pad for handling/processing debris at Clark Fork debris yard. Construction of powerhouse roof enclosure on west deck is continuing with funds provided by Bonneville Power Administration (Section 2406).

27. CHIEF JOSEPH DAM - RUFUS WOODS LAKE, WA

Location. On Columbia River in north central Washington, at River Mile 545, just upstream from mouth of Foster Creek, 1.5 miles upstream from town of Bridgeport. (Geological Survey topographic sheet, Okanogan, WA, shows general locality.)

Existing project. A concrete gravity structure which consists of a 19-gate spillway and a 27-unit powerhouse. The powerhouse has sixteen 88,274 kilowatt and eleven 95,000 kilowatt generators with nameplate capacity of 2,457,384 kilowatts.

Local cooperation. None required.

Operations during fiscal year. Maintenance, hired labor: Routine structural, mechanical, and electrical maintenance work was performed on powerhouse, spillway, dam and equipment. Prescribed testing for power system improvements and replacement DACS continued with funds provided by Bonneville Power Administration (Section 2406).

Maintenance, contract: Contracts for project road resurfacing, re-roof administration building and the station service governor electronics retrofit were completed. Contracts for tailrace stop log painting and repair were initiated. Contract for re-roof of the powerhouse and warehouse continued. Contract for the station service transformer replacement continued with funds provided by Bonneville Power Administration (Section 2406).

28. LIBBY DAM - LAKE KOOCANUSA, MT

Location. On Kootenai River in Lincoln County, MT, about 17 miles upstream from Libby, and 219 miles upstream from confluence of Kootenai and Columbia Rivers. (See Geological Survey topographic sheet, Thompson Lakes, MT.)

Existing project. Provides storage for local flood control protection in Montana and Idaho, and main stem flood control in Lower Columbia River, hydroelectric power generation at-site and at downstream plants through storage release. Project is operated as a unit of a comprehensive system for improvement of Columbia River basin for flood control, navigation, hydroelectric power, and other purposes. Lake Koocanusa is 90 miles long, backing water 42 miles into Canada and has a usable storage capacity of 4,965,000 acre-feet at 50 percent drawdown. Construction of dam was in accordance with a treaty between United States and Canada relating to international cooperation in water resource development of the Columbia River basin. Dam is a straight-axis concrete gravity overflow type, 420 feet high, 3,055 feet long, with normal full pool at elevation 2,459 feet above mean sea level. Powerhouse has an initial installed capacity of 480,000 kilowatts from four hydroelectric generating units. A fifth generating unit (**Libby Additional Units Project**) was completed in 1984 with an additional capacity of 120,000 kilowatts. Fabrication of generators for units 6 through 8 is completed and parts have been stored at the site. Project is completed with units 1 through 5 operational. Units 6 through 8 have been reclassified inactive. The **Libby Reregulating Dam Project** provided for construction of a reregulating dam about 10 miles downstream of Libby Dam. Funds were allocated for a construction start in 1977; however, courts have found that Congress did not authorize construction of the dam. In FY 1982, all work was terminated due to court direction. The **Libby Reregulating Dam - Power Units Project** provided for installation of three hydroelectric generating units at the reregulating dam with 78,900 kilowatt installed capacity. (For further details, see Annual Report for 1995).

Local cooperation. Fully complied with.

Operations during fiscal year. Maintenance, hired labor: Reservoir was operated through its annual cycle of storage and release. Routine structural, mechanical, and electrical maintenance was performed on spillway, dam, powerhouse and equipment. Cleaning of foundation drains continues. Fish hatchery operation continued under contract with the State of Montana. Transformer T1 was overhauled by staff from Libby Dam and from BPA's Transmission Business Line (TBL). Emergency generator was purchased to provide necessary capacity for system start-up. Equipment was purchased to replace dam-crest alignment equipment.

Maintenance, contract: Contracts were completed for asbestos abatement at dam's water supply facility and in visitor center; repair of HVAC at visitor center; replacement of

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powerhouse air-filter precipitron cells; and modernization of visitor center restrooms. Emergency repairs to intake-crane 75-ton hoist were completed with funds provided by Bonneville Power Administration (Section 2406). Contracts awarded and/or on-going include replacement of station service breakers; development of new exhibits at visitor center; and patching/sealing of left-bank warehouse to exclude bats and rodents.

Environmental

29. DEEPWATER SLOUGH, WA

Location. The project is located on the Skagit River (South Fork), near Milltown, Skagit County, WA.

Existing project. Construct approximately 8,300 linear feet of new dikes, augment and rehabilitate 10,000 linear feet of existing dikes, install two drainage structures, a bridge crossing for Deepwater Slough, provide native species planting, and placement of large, woody debris. Breach the existing dikes in three locations at Milltown Island to restore tidal and riverine influence. Completed project will reconnect portions of the wildlife area to tidal inundation and periodic flooding to re-establish inter-tidal marsh, shrub, and forested communities. Project was physically complete in FY 2000. Monitoring will continue through FY 2005.

Local cooperation. Requirements are described in full on page 29-12 of FY 2000 Annual Report.

Operations during fiscal year. New work, hired labor: Administered contract for fisheries monitoring.

New work, contract: Completed the fieldwork portion of the project monitoring plan.

30. GOLDSBOROUGH CREEK, WA

Location. The restoration site is located in southwest Washington State, just east of the city of Shelton in Mason County at river mile 2.3 on Goldsborough Creek.

Existing project. Dam structure and associated channel degradation/instability have created a bottleneck in a system which hinders upstream and downstream passage of fish. Restoration consists of removing the existing dam, placing fill material downstream, and constructing weirs to allow for fish passage. Habitat features have been incorporated to support ecosystem functions. Project was physically complete in FY 2001, with final fiscal requirements remaining.

Local cooperation. Fully complied with. Requirements are described in full on page 29-12 of FY 2000 Annual Report.

Operations during fiscal year. New work, hired labor: Supervised contract work.

New work, contract: Completed construction contract.

31. HOWARD A. HANSON DAM, WA

Location. Project is located on the Green River, King County, WA, 35 miles southeast of Seattle and 35 miles northeast of Tacoma.

Existing project. Modifications to the existing project, for which construction was completed in 1962, involve the water control operating plan to restore natural river flows and functions, vegetation plantings and placement of structures to improve fish and wildlife habitat. Project was 90% complete in FY 2001. Monitoring will continue through FY 2004.

Local cooperation. Under current cost sharing requirements, the local sponsor (City of Tacoma) will provide 25% of project cost. A Project Cooperation Agreement (PCA) was signed on April 21, 2000.

Operations during fiscal year. New work, hired labor: Completed 60% of vegetation plantings and supervised construction work.

New work, contract: Construction of sub-impoundment and in-stream habitat features were completed by equipment rental contract.

32. LAKE WASHINGTON SHIP CANAL, WA

Location. Entirely within city of Seattle and extends from Puget Sound through Shilshole Bay, Salmon Bay, Lake Union, Portage Bay, and Lake Union to deep water in Lake Washington. (See NOAA Survey Chart 18447.)

Existing project. Lake Washington is fed by the Sammamish and Cedar River systems, and supports large anadromous salmon runs. A fish ladder at the Hiram A. Chittenden Locks provides for upstream migration of returning salmon adults. However, there are significant mortalities among salmon smolt leaving the lake system and passing through the lock chambers to salt water. Project construction reduces outmigrating mortalities. Elements of work include a strobe light system at the large lock entrance to reduce smolt entry into the locks, slower lockages to reduce turbulence, removal of barnacles in the large lock filling conduits, and a smolt slide to pass fish over the spillway gates near the fish ladder. Project was physically complete in FY 2000. Monitoring, completed in FY 2001, included the capture, tagging and counting of juvenile salmon as they proceed through the smolt flumes. There was also hydroacoustic monitoring in the large lock. Final fiscal requirements remain.

Local cooperation. Fully complied with. Requirements are described in full on page 29-12 of FY 2000 Annual Report.

Operations during fiscal year. New work, hired labor: Conducted monitoring process.

New work, contract: None.

33. TURNING BASIN #3, SEATTLE, WA

Location. The restoration site is just south of the city of Seattle in King County, WA, near turning basin #3, which is near river mile 6.2 on the left bank of the Duwamish River.

Existing project. Restore 6.2 acres of fish and wildlife habitat at the upstream limit of the Seattle Harbor project. Habitat development includes creation of inter-tidal mud flats, a tidal marsh, a new meandering stream channel, and "daylighting" the mouth of Hamm Creek into the Duwamish River. The downstream Hamm Creek stream length will be increased from the current 800 linear feet to 2,300 linear feet. Hamm Creek improvements will facilitate fish passage. Project was completed in FY 2001, with final fiscal requirements remaining.

Local cooperation. Fully complied with. Requirements are described in full on page 29-14 of FY 2000 Annual Report.

Operations during fiscal year. New work, hired labor: Prepared O&M manual and proceeded with project close-out.

New work, contract: None.

Environmental activities (Section 1135, Public Law 99-662, as amended; Section 206 Public Law 104-303).

See Table 29-N.

General Investigations

34. SURVEYS

Fiscal year costs were \$185,661 for navigation studies, \$531,423 for flood damage prevention studies, \$235 for shoreline protection studies, \$253,258 for special studies, \$785,893 for review of authorized projects, \$206,374 for miscellaneous activities, and \$174,168 for coordination with other agencies and non-Federal interests, a total of \$2,137,012. In addition, contributed funds were expended for the following: \$14,814 for navigation studies, \$237,576 for flood damage prevention studies, \$49,438 for special studies, \$352,101 for review of authorized projects, and \$226,512 for coordination with other agencies and non-Federal interests, a total of \$880,441.

35. COLLECTION AND STUDY OF BASIC DATA

The work programmed for collection and study of basic data covers international water studies, flood plain management services, and hydrologic studies. Work on international water studies included checking Kootenay Lake storage computations to determine compliance of West Kootenay Power & Light Co. with orders of International Joint Commission, and coordination with International Kootenay Lake and Osoyoos Lake Boards of Control in enforcement of International Joint Commission orders. Technical assistance was provided other Federal and non-Federal agencies and Indian tribes in flood hazard evaluation, flood reduction methods, and related services as requested. Fiscal year costs were \$33,896 for international water studies, \$180,401 for flood plain management services, and \$4,746 for hydrologic studies, a total of \$219,043.

36. PRECONSTRUCTION ENGINEERING AND DESIGN

See Table 29-H.

Centralia, WA

The city of Centralia lies in west central Washington at the confluence of the Chehalis and Skookumchuck Rivers, about midway along the Chehalis River from its source in the Willapa Hills to its mouth at Aberdeen in Grays Harbor. Floods of record on Skookumchuck, Newaukum, and Chehalis Rivers occurred in February 1996.

The plan of improvement authorized in P.L. 99-662 would substantially reduce flooding in the Skookumchuck River valley for the 22 miles between Skookumchuck Dam and the river mouth, including a major portion of Centralia, and provide minor reductions along the Chehalis River downstream from Centralia for about 20 miles to Oakville. The improvement, as recommended in the feasibility report, consisted of structural modifications (flood control outlet tunnel and spillway gate) which would enable the existing, private water supply dam to provide flood control storage during winter months.

Preconstruction Engineering and Design (PED) was started in FY 1988 to refine the project design recommended in the feasibility report. In FY 1990, refinement of project design to a less costly, gated spillway sluice and reevaluation of hydrology, existing local levees and embankments, estimated flood damages, and potential flood reduction benefits were completed. Studies determined that the Skookumchuck Dam modification no longer appeared economically justifiable and further work was suspended. In FY 1992 a wrap-up report presenting results of the technical analyses completed to date was provided to local governments.

Following the severe flooding in the Centralia-Chehalis area in 1996 there was a renewed public interest in flood damage reduction. Using state and local funding sources, Lewis County reviewed past study efforts and developed a revised

SEATTLE, WASHINGTON DISTRICT

flood damage reduction plan that would combine the authorized dam modification with overbank excavation and flow bypass measures. The revised project would provide substantial benefits to both Centralia and Chehalis and appeared to be economically justified. In July 1998, Lewis County requested resumption of PED for the project with a view toward preparing a General Reevaluation Report and Environmental Impact Statement for an expanded project. Work resumed soon thereafter.

Accomplishments during the fiscal year included completion of the hydrologic and hydraulic model, an independent technical review of this model, existing environmental conditions, and liquefaction analysis. A majority of the cultural resource surveys in the study area was also completed. Performed work on the existing economic damages, the restoration and mitigation opportunities and design of the alternatives - all necessary for selecting a preferred alternative by December 31, 2001. Fiscal year costs were \$1,756,316. Total costs to date have been \$5,165,727.

Duwamish and Green Rivers, WA

The Green River flows out of the Cascade Mountains and enters salt water in Puget Sound at Elliot Bay, Seattle, WA, as the Duwamish River.

The ecosystem restoration project includes 45 sites or programmatic projects throughout the river basin. The projects include everything from culvert replacements in the upper basin to replenishing habitat in Elliot Bay.

Work under Preconstruction Engineering and Design (PED) commenced in FY 2001 with the development of a Draft Design Agreement and Project Management Plan, expected to be signed in January 2002.

Accomplishments during the fiscal year include coordination with the local sponsor (King County), representatives of 17 cities within the basin, the Muckleshoot Indian Tribe, and local and Federal resource agencies. Total costs to date have been \$49,320.

Howard A. Hanson Dam, WA

Howard A. Hanson Dam is an existing earthfill and rockfill structure located at river mile 64.5 on the Green River, King County, WA, 35 miles southeast of Seattle and 35 miles northeast of Tacoma.

Work under Preconstruction Engineering and Design (PED) commenced in FY 1998 to refine the project design recommended in the feasibility report. A Project Design Agreement was signed with Tacoma Public Utilities on March 12, 1999. Site surveys and a general model study were initiated in FY 1999.

Accomplishments during the fiscal year include coordination

with the local sponsor (city of Tacoma Water Division), and continuation of PED activities on the tower, fish passage, and habitat mitigation/restoration sites. Two additional hydraulic models of the fish passage facility were initiated, a sectional model and a screen model. Fiscal year costs were \$2,306,907. Total costs to date have been \$4,901,941. In addition, \$768,500 contributed funds were expended in FY 2001. Total contributed funds expended to date have been \$1,562,187.

Other Activities

37. NATIONAL EMERGENCY PREPAREDNESS PROGRAM (NEPP)

Fiscal year costs were \$92,879, provided for activities required for local and national preparedness.

38. GENERAL REGULATORY FUNCTIONS PROGRAM

Permit Evaluation	\$2,966,694
Enforcement	443,825
Other Navigation Regulations	0
Appeals	1,558
TOTAL	\$3,412,077

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total To Sep. 30, 2001	
1.	Bellingham Harbor, WA (Federal Funds)	New Work						
		Approp.	-	-	-	-	1,566,839	
		Cost	-	-	-	-	1,566,839	1
		Maint.						
		Approp.	-	-	99,293	105,001	3,294,549	
		Cost	-	-	99,293	105,001	3,294,549	2
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	29,421	
		Cost	-	-	-	-	29,421	
		Maint.						
		Contrib.	-	-	-	-	9,103	
		Cost	-	-	-	-	9,103	
2.	Blair Waterway, Tacoma, WA (Federal Funds)	New Work						
		Approp.	-	165,000	1,687,000	34,000	2,366,000	
		Cost	-	157,784	1,682,740	32,980	2,353,504	3
	(Contrib. Funds)	New Work						
		Contrib.	-	95,000	1,788,500	-	1,883,500	
		Cost	-	95,000	1,590,788	96,279	1,782,067	
3.	Everett Harbor and Snohomish River, WA (Federal Funds)	New Work						
		Approp.	-	-	-	-	1,723,745	
		Cost	-	-	-	-	1,723,745	4
		Maint.						
		Approp.	1,559,000	1,533,569	607,486	1,052,003	19,713,982	
		Cost	1,562,712	1,550,729	608,903	1,052,043	19,713,982	5
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	116,618	
		Cost	-	-	-	-	116,618	
		Maint.						
		Contrib.	-	-	-	-	548,090	
		Cost	-	-	-	-	548,090	
4.	Friday Harbor, WA (Federal Funds)	New Work						
		Approp.	-	-	-	-	1,575,500	
		Cost	-	-	-	-	1,575,500	6
		Maint.						
		Approp.	-	13,084	335,098	4,513	513,648	
		Cost	2,581	18,885	335,098	4,513	513,648	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	1,267,881	
		Cost	-	-	-	-	1,267,881	
5.	Grays Harbor and Chehalis River, WA (Federal Funds)	New Work						
		Approp.	49,225	1,006,167	-79,105	-25,000	23,255,248	7
		Cost	38,064	563,491	310,710	29,941	23,207,556	8
		Maint.						
		Approp.	9,173,000	10,597,000	20,623,703	13,110,237	191,391,963	
		Cost	6,127,575	13,627,581	20,637,890	11,578,561	189,846,798	9

SEATTLE, WASHINGTON DISTRICT

TABLE 29-A
(Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total To Sep. 30, 2001	
		Minor Rehab.						
		Approp.	-	-	-	-	9,592	
		Cost	-	-	-	-	9,592	10
		Major Rehab.						
		Approp.	-	-	-	-	4,606,145	
		Cost	-	-	-	-	4,606,145	
	(Contrib. Funds)	New Work						
		Contrib.	-	200,000	100,000	-	6,396,000	
		Cost	12,766	201,984	89,335	9,173	6,378,932	11
		Maint.						
		Contrib.	-	-	-	-	55,889	
		Cost	-	-	-	-	55,889	
6.	Lake Crockett, WA	New Work						
		Approp.	-	-	-	-	377,990	
		Cost	-	-	-	-	377,990	12
		Maint.						
		Approp.	216,000	-334	-	8,592	1,187,867	
		Cost	204,294	11,371	-	8,592	1,187,867	
7.	Lake Washington Ship Canal, WA (Federal Funds)	New Work						
		Approp.	-	-	-	-	4,611,436	
		Cost	-	-	-	-	4,611,436	13
		Maint.						
		Approp.	6,345,750	6,873,858	7,242,000	7,252,517	151,425,220	
		Cost	6,364,615	6,917,916	7,317,690	7,234,106	151,368,003	14
		Major Rehab.						
		Approp.	-	-	-	-	7,465,230	
		Cost	-	-	-	-	7,465,230	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	250,000	
		Cost	-	-	-	-	250,000	15
		Maint.						
		Contrib.	-	-	-	-	40,000	
		Cost	39,964	-	-	-	39,964	
8.	Neah Bay, WA	New Work						
		Approp.	-	-	-	-	2,057,266	
		Cost	-	-	-	-	2,057,266	
		Maint.						
		Approp.	209,000	-	-	57,554	2,140,611	
		Cost	215,328	2,398	-	57,554	2,140,611	
10.	Puget Sound and its Tributary Waters, WA	New Work						
		Approp.	-	-	-	-	43,337	
		Cost	-	-	-	-	43,337	
		Maint.						
		Approp.	898,000	626,351	627,364	1,004,721	27,945,186	
		Cost	962,993	630,755	628,750	1,004,886	27,945,186	16
11.	Quillayute River, WA (Federal Funds)	New Work						
		Approp.	-	-	-	-	521,850	
		Cost	-	-	-	-	521,850	17
		Maint.						
		Approp.	1,206,000	891,202	803,917	249,352	26,653,364	

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-A COST AND FINANCIAL STATEMENT
(Continued)

See Section							Total To	
In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Sep. 30, 2001	
		Cost	1,245,470	897,390	840,772	250,903	26,653,363	
	(Contrib. Funds)	New Work						
		Contrib.					20,000	
		Cost	-	-	-	-	20,000	
12.	Seattle Harbor, WA	New Work						
	(Federal Funds)	Approp.					170,335	
		Cost	-	-	-	-	170,335	
		Maint.						
		Approp.	1,230,000	1,794,091	3,254,349	368,158	17,876,971	18
		Cost	1,180,241	1,800,724	3,305,056	368,319	17,876,971	19
	(Contrib. Funds)	New Work						
		Contrib.					69,333	
		Cost	-	-	-	-	69,333	
		Maint.						
		Contrib.			2,262,975		2,357,450	20
		Cost	-	-	2,038,749	149,786	2,283,010	21
13.	Swinomish Channel, WA	New Work						
	(Federal Funds)	Approp.					808,332	
		Cost	-	-	-	-	808,332	22
		Maint.						
		Approp.	238,000	91,108	250,630	44,180	8,921,891	
		Cost	239,049	93,261	249,796	46,515	8,921,891	
	(Contrib. Funds)	New Work						
		Contrib.					32,000	
		Cost	-	-	-	-	32,000	
		Maint.						
		Contrib.					379,248	
		Cost	-	-	-	-	379,248	
14.	Tacoma Harbor, WA	New Work						
	(Federal Funds)	Approp.					2,383,891	
		Cost	-	-	-	-	2,383,891	23
		Maint.						
		Approp.				19,870	1,557,020	
		Cost	-	-	-	19,870	1,557,020	24
	(Contrib. Funds)	New Work						
		Contrib.					1,147,208	
		Cost	-	-	-	-	1,147,208	
		Maint.						
		Contrib.					222,500	
		Cost	-	-	-	-	222,500	
15.	Willapa River and Harbor and Naselle River, WA	New Work						
	(Federal Funds)	Approp.					1,386,955	
		Cost	-	-	-	-	1,386,955	25
		Maint.						
		Approp.	2,490,000	1,215,172	2,051,158	1,598,839	22,938,911	
		Cost	1,487,978	2,222,054	2,050,231	1,600,101	22,938,911	26
	(Contrib. Funds)	New Work						
		Contrib.					78,372	
		Cost	-	-	-	-	78,372	27
16.	Lincoln Park Beach, Seattle, WA	New Work						
	(Federal Funds)	Approp.				19,109	944,609	
		Cost	-	-	-	9,422	934,922	

SEATTLE, WASHINGTON DISTRICT

TABLE 29-A
(Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY01	Total To Sep. 30, 2001	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	391,126	
		Cost	-	-	-	-	391,126	
17.	Cedar River, Renton, WA (Federal Funds)	New Work						
		Approp.	2,480,011	2,035,300	-	300,000	5,299,311	
		Cost	1,315,128	2,931,585	261,220	303,493	5,289,342	
	(Contrib. Funds)	New Work						
		Contrib.	1,617,000	1,365,260	181,895	-270,000	3,222,155	
		Cost	833,290	1,293,232	883,414	-152,335	3,185,384	
18.	Howard A. Hanson Dam, WA (Federal Funds)	New Work						
		Approp.	3,773	-	-	-	38,311,834	
		Cost	4,474	-	-	-	38,311,834	28
		Maint.						
		Approp.	924,426	1,447,743	1,657,000	1,916,324	25,534,822	
		Cost	972,991	1,472,651	1,669,894	1,910,735	25,521,696	29
	(Contrib. Funds)	New Work						
		Contrib.	-3,958	-	-	-	2,009,742	
		Cost	-3,958	-	-	-	2,009,742	
20.	Long Road, Chehalis River, WA (Federal Funds)	New Work						
		Approp.	20,000	34,000	305,500	-30,000	453,500	
		Cost	15,460	41,346	181,399	106,556	450,617	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	119,632	-	163,032	
		Cost	-	-64	5,053	55,134	103,220	
21.	Milo Creek, Kellogg, ID	New Work						
		Approp.	-	-	-	1,000,000	1,000,000	
		Cost	-	-	-	996,827	996,827	
22.	Mud Mountain Dam, WA (Federal Funds)	New Work						
		Approp.	842,227	3,780,000	4,400,000	3,189,000	92,727,075	30
		Cost	867,658	1,866,410	4,794,889	3,814,127	92,333,680	31
		Maint.						
		Approp.	1,774,823	2,289,429	2,862,000	2,773,453	43,766,021	
		Cost	1,790,974	2,380,528	2,854,976	2,777,432	43,744,893	32
		Minor Rehab.						
		Approp.	-	-	-	-	285,908	
		Cost	-	-	-	-	285,908	
		Major Rehab.						
		Approp.	-	-	-	-	30,437,500	
		Cost	-	-	-	-	30,437,500	
	(Contrib. Funds)	Maint.						
		Contrib.	-	-	-	-	3,928	
		Cost	-	-	-	-	3,928	
24.	Stillaguamish River, WA (Federal Funds)	New Work						
		Approp.	-	-	-	-	134,595	
		Cost	-	-	-	-	134,595	33
		Maint.						
		Approp.	183,000	174,000	165,108	174,559	3,995,190	
		Cost	184,132	174,684	164,776	174,851	3,994,977	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	21,000	
		Cost	-	-	-	-	21,000	
25.	Tacoma, Puyallup River, WA	New Work						

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-A COST AND FINANCIAL STATEMENT
(Continued)

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total To Sep. 30, 2001	
	(Federal Funds)	Approp.	-	-	-	-	3,947,853	
		Cost	-	-	-	-	3,947,853	34
		Maint.						
		Approp.	71,000	66,000	42,585	56,832	1,292,784	
		Cost	71,934	66,961	42,514	56,029	1,291,762	
	(Contrib. Funds)	Maint.						
		Contrib.	-	-	-	-	54,405	
		Cost	24,055	12,900	4,534	-64	49,186	
26.	Albeni Falls Dam, ID	New Work						
		Approp.	-	-	-	-	31,741,561	
		Cost	-	-	-	-	31,741,561	35
		Maint.						
		Approp.	5,011,487	4,553,193	6,522,770	7,215,073	97,988,561	36
		Cost	4,587,411	4,744,550	6,767,724	7,094,762	97,414,570	37
27.	Chief Joseph Dam- Rufus Woods Lake, WA	New Work						
		Approp.	-176,000	-5,000	-	-	540,341,235	38
		Cost	-108,174	20,303	231	-	540,341,224	39
		Maint.						
		Approp.	12,716,493	16,576,485	20,548,412	19,576,598	253,273,416	40
		Cost	12,647,268	15,907,903	17,164,718	21,734,066	250,572,896	41
		Major Rehab.						
		Approp.	-	-	-	-	297,630	
		Cost	-	-	-	-	297,630	
28.	Libby Dam - Lake Koocanusa, MT (Federal Funds)	New Work						
		Approp.	-	-	-	-	543,726,140	
		Cost	-	-	-	-	543,726,140	42
		Maint.						
		Approp.	6,926,169	8,917,402	8,072,488	9,545,112	115,026,753	43
		Cost	6,943,323	8,800,690	7,196,483	9,452,194	113,750,971	44
	(Contrib. Funds)	New Work						
		Contrib.	-	-	-	-	1,458,252	
		Cost	-	-	-	-	1,458,252	45
29.	Deepwater Slough, WA (Federal Funds)	New Work						
		Approp.	165,000	845,000	664,000	310,000	1,984,000	
		Cost	120,738	740,930	598,381	480,643	1,940,692	
	(Contrib. Funds)	New Work						
		Contrib.	-	263,000	175,250	-290,000	148,250	
		Cost	-	75,641	237,475	-206,901	106,215	
30.	Goldsborough Creek, WA (Federal Funds)	New Work						
		Approp.	40,000	690,000	295,000	2,218,000	3,243,000	
		Cost	12,205	484,511	471,023	2,231,361	3,199,099	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	373,000	1,177,300	1,550,300	
		Cost	-	-	-	1,146,461	1,146,461	
31.	Howard A. Hanson Dam, WA (Federal Funds)	New Work						
		Approp.	64,700	-47,000	25,500	149,000	303,700	
		Cost	12,551	19,374	31,923	133,811	277,944	
	(Contrib. Funds)	New Work						
		Contrib.	-	-	15,000	65,000	80,000	
		Cost	-	-	-	26,340	26,340	
32.	Lake Washington Ship Canal, WA (Federal Funds)	New Work						
		Approp.	215,000	220,000	1,234,000	112,000	1,781,000	

SEATTLE, WASHINGTON DISTRICT

TABLE 29-A
(Continued)

COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98	FY 99	FY 00	FY 01	Total To Sep. 30, 2001
		Cost	171,310	238,311	1,216,076	127,368	1,753,065
	(Contrib. Funds)	New Work					
		Contrib.	-	-	557,000	31,750	588,750
		Cost	-	-	514,126	65,964	580,090
33.	Turning Basin #3 Seattle, WA	New Work					
		Approp.	40,000	836,200	673,700	80,000	1,789,900
		Cost	67,664	678,468	809,069	82,686	1,759,954

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Includes \$56,582 appropriated and expended for previous project. Excludes \$13,000 Coast Guard funds expended. 2. Includes \$1,092 appropriated and expended for previous project. 3. Includes \$480,000 for Preconstruction Engineering and Design, appropriated and expended. 4. Includes \$418,209 appropriated and expended for previous project. Excludes \$43,000 Coast Guard funds expended. 5. Includes \$5,869 for previous project and \$120,000 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended. 6. Includes \$1,180,500 expended under Productive Employment Appropriation Act of 1983 (P.L.98-8). 7. Includes \$23,017,169 appropriated for all projects (current project is \$18,135,287 including \$3,530,000 PED), \$124,945 for recreation facilities at completed project (Code 710), and \$113,134 for previous project. Excludes \$161,909 Navy funds and \$6,000 Coast Guard funds. 8. Includes \$22,969,477 expended for all projects (current project is \$18,087,595 including \$3,530,000 PED), \$124,945 for recreation facilities at completed project (Code 710), and \$113,134 for previous project. Excludes \$161,909 Navy funds and \$6,000 Coast Guard funds. 9. Includes \$37,415 for previous projects and \$3,923,511 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended. Excludes \$409,660 Emergency Relief funds and \$57,000 Public Works Administration funds expended. 10. Excludes \$111,000 Public Works Acceleration Act funds expended. 11. Excludes \$3,418,000 contributed by Port of Grays Harbor in fulfilling requirements of local cooperation. 12. Includes \$117,750 appropriated and expended for recreation facilities at completed project (Code 710). 13. Includes \$779,655 for recreation facilities at completed project (Code 710) and \$485,002 for previous project, appropriated and expended. Excludes \$246,567 expended by State of Washington and \$742,071 expended by King County. Excludes \$192,516 Public Works Administration funds expended. 14. Includes \$1,631,195 (1916 to 1936) and \$338,163 subsequently appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. 15. Previous project. 16. Includes \$64,996 appropriated and expended for previous project. 17. Excludes Navy funds expended on dredging river channel in 1944 and Coast Guard funds expended for channel dredging in 1948 and 1949. 18. Includes \$3,330,554 appropriated for East Waterway. 19. Includes \$3,330,554 expended for East Waterway. 20. Includes \$2,262,975 appropriated for East Waterway. 21. Includes \$2,188,535 expended for East Waterway. | <ol style="list-style-type: none"> 22. Excludes \$1,000 Coast Guard funds expended. 23. Includes \$159,585 appropriated and expended for previous project. Excludes \$51,609 Public Works Administration funds expended. 24. Includes \$5,347 appropriated and expended for previous projects. 25. Includes \$228,084 appropriated and expended for previous projects. Excludes \$40,000 Coast Guard funds and \$192,314 Emergency Relief funds expended. 26. Includes \$309,177 appropriated and expended for previous projects. Excludes \$78,532 Public Works Administration funds expended. 27. Includes \$6,597 expended for previous projects. 28. Includes \$37,048,061 appropriated and expended for original project and \$1,263,773 appropriated and expended for Dam Safety Assurance. 29. Includes \$66,678 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. 30. Includes \$13,182,063 appropriated for original project, \$87,785 appropriated for recreation facilities at completed project (Code 710) and \$79,457,227 appropriated for Dam Safety Assurance. Excludes \$26,000 Emergency Relief funds. 31. Includes \$13,182,063 expended for original project, \$87,785 expended for recreation facilities at completed project (Code 710) and \$79,063,832 expended for Dam Safety Assurance. Excludes \$26,000 Emergency Relief funds expended. 32. Includes \$198,578 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. 33. Excludes \$281,000 Works Progress Administration funds and \$85,999 Emergency Relief funds expended. 34. Includes \$5,035 appropriated and expended for recreation facilities at completed project (Code 710). 35. Includes \$30,769,614 for original project and \$971,947 for recreation facilities at completed project (Code 710), appropriated and expended. Excludes \$136,736 Public Works Acceleration Act funds expended for recreation facilities at completed project (Code 710). 36. Includes funds appropriated for project O&M (\$82,796,161), Special Recreation Use Fees (\$174,776), Maintenance and Operation of Dams and Other Improvements of Navigable Waters (\$1,875,446), BPA/COE Merged, CAT 390 (\$10,930,014) and BPA-4045 Large Capital Subagreements, CAT 300 (\$2,212,164). 37. Includes funds expended for project O&M (\$82,752,293), Special Recreation Use Fees (\$174,776), Maintenance and Operation of Dams and Other Improvements of Navigable Waters (\$1,875,446), BPA/COE Merged, CAT 390 (\$10,758,934) and BPA-4045 Large Capital Subagreements, CAT 300 (\$1,853,121). |
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REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-A
(Continued)

COST AND FINANCIAL STATEMENT

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|---|--|
| <p>38. Includes \$144,338,252 appropriated for original project, \$395,855,000 for additional units, and \$147,983 for recreation facilities at completed project (Code 710). Excludes \$58,000 Public Works Acceleration Act funds for recreation facilities at completed project (Code 710).</p> <p>39. Includes \$144,338,252 expended for original project, \$395,854,989 for additional units, and \$147,983 for recreation facilities at completed project (Code 710). Excludes \$58,000 Public Works Acceleration Act funds for recreation facilities at completed project (Code 710).</p> <p>40. Includes funds appropriated for project O&M (\$198,615,399), Maintenance and Operation of Dams and Other Improvements of Navigable Waters (\$774,561), BPA/COE Merged, CAT 390 (\$41,313,431), and BPA-4045 Large Capital Subagreements, CAT 300 (\$12,570,025).</p> <p>41. Includes funds expended for project O&M (\$198,600,038), Maintenance and Operation of Dams and Other Improvements of Navigable Waters (\$774,561), BPA/COE Merged, CAT 390 (\$41,132,333), and BPA-4045 Large Capital Subagreements, CAT 300 (\$10,065,964).</p> | <p>42. Includes \$484,753,143 appropriated and expended for original project, \$42,221,634 for additional units, \$16,276,363 for reregulating dam, and \$475,000 for power planning.</p> <p>43. Includes funds appropriated for project O&M (\$91,651,812), Maintenance and Operation of Dams and Other Improvements of Navigable Waters (\$774,561), BPA/COE Merged, CAT 390 (\$20,272,690), and BPA-4045 Large Capital Subagreements, CAT 300 (\$2,327,690).</p> <p>44. Includes funds expended for project O&M (\$91,572,504), Maintenance and Operation of Dams and Other Improvements of Navigable Waters (\$774,561), BPA/COE Merged, CAT 390 (\$20,089,035), and BPA-4045 Large Capital Subagreements, CAT 300 (\$1,314,871).</p> <p>45. Excludes \$161,849 expended by Federal Aviation Agency, \$32,000 expended by Lincoln County- City of Libby Joint Airport Board, \$8,000 expended by Bonneville Power Administration, and \$379,555 expended by U.S. Forest Service.</p> |
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SEATTLE, WASHINGTON DISTRICT

TABLE 29-B

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
1.	June 25, 1910 July 3, 1930 Aug. 26, 1937 Sep. 3, 1954 July 14, 1960 as amended July 3, 1958 July 14, 1960 as amended	BELLINGHAM HARBOR, WA Whatcom Creek Waterway 26- and 18-foot channels. Entrance channel in Squalicum Creek Waterway. Maintenance of southerly half and westerly end of Squalicum Creek Basin. Small-boat basin adjacent to Squalicum Creek Waterway. Expansion of small-boat basin. Whatcom Creek Waterway, 30-foot channel. Channel 3,200 feet long, 100 feet wide, and 18 feet deep in I&J Street Waterway.	H. Doc. 1161, 60th Cong., 2d Sess. H. Doc. 187, 70th Cong., 1st Sess. Rivers and Harbors Committee Doc. 70, 74th Cong., 1st Sess. H. Doc. 558, 82d Cong., 2d Sess. Sec. 107, P.L. 86-645 Authorized by Chief of Engineers Feb 10, 1976. S. Doc. 46, 85th Cong., 1st Sess. Sec. 107, P.L. 86-645 Authorized by Chief of Engineers May 5, 1965.
2.	July 14, 1960 as amended	BLAIR WATERWAY, TACOMA, WA Deepen channel and turning basin to -51 feet mean lower low water.	Sec. 107, P.L. 86-645. Authorized by Chief of Engineers Sep. 17, 1999
3.	June 25, 1910 July 3, 1930 June 20, 1938 Sep. 3, 1954 July 14, 1960	EVERETT HARBOR AND SNOHOMISH RIVER, WA Training dike 10,500 feet long extending across bar at outlet of old river channel. Raise 6,000 feet of training dike, extend spur dike, widen gap in dike as required, maintain East Waterway and channel to gap. Abandon project for Snohomish River and redesignate as Everett Harbor and Snohomish River. Provide settling basin near 14th Street. Construct spur dike at Preston Point, remove training dike north of river outlet, enlarge channel to 14th Street, and deepen settling basin. Widen channel from settling basin to gap; extend channel to head of Steamboat Slough; and a settling basin within upper channel reach.	H. Doc. 1108, 60th Cong., 2d Sess. H. Doc. 377, 71st Cong., 2d Sess. H. Doc. 546, 75th Cong., 3d Sess. H. Doc. 569, 81st Cong., 2d Sess. H. Doc. 348, 86th Cong., 2d Sess.
4.	July 14, 1960 as amended	FRIDAY HARBOR, WA Construction of 1,600 feet of concrete floating breakwater.	Sec. 107, P.L. 86-645. Authorized by Chief of Engineers July 9, 1981.
5.	June 3, 1896 Mar. 2, 1907 Mar. 2, 1907 June 25, 1910 June 25, 1910 Aug. 8, 1917 Jan. 21, 1927 Aug. 30, 1935 Aug. 30, 1935 Dec. 22, 1944 as amended Mar. 2, 1945 June 30, 1948	GRAYS HARBOR AND CHEHALIS RIVER, WA South jetty. A north jetty 9,000 feet long. The 18-foot channel. Extend north jetty 7,000 feet; length of south jetty fixed at 13,734 feet. A 6-foot channel above Cosmopolis. Dredging in bar channel. Dredging in bar channel. Reconstruct north and south jetties to an elevation of 16 feet above mean lower low water. Maintain 26-foot channel below Aberdeen (as authorized by Public Works Administration Dec. 11, 1933) and combining projects for Grays Harbor and bar entrance and Grays Harbor, inner portion, and Chehalis River under a modified project for Grays Harbor and Chehalis River. Construction, operation, and maintenance of recreation facilities. Maintain 30-foot depth in channel from deep water in Grays Harbor to Port of Grays Harbor Commission terminal which was deepened from 26 to 30 feet with Navy funds. 14-foot channel to Bay City; breakwater at Westhaven; and maintenance of Westhaven entrance channel.	Annual Report, 1895, pp. 3517-3533. Rivers and Harbors Committee Doc. 2, 59th Cong., 2d Sess. H. Doc. 507, 59th Cong., 1st Sess. Rivers and Harbors Committee Doc. 29, 61st Cong., 2d Sess. H. Doc. 1125, 60th Cong., 2d Sess. H. Doc. 1729, 64th Cong., 2d Sess. H. Doc. 582, 69th Cong., 2d Sess. Rivers and Harbors Committee Doc. 2, 74th Cong., 1st Sess. H. Doc. 53, 73rd Cong., 1st Sess. Rivers and Harbors Committee Doc. 2, 74th Cong., 1st Sess. P.L. 78-534 Report in Office, Chief of Engineers H. Doc. 635, 80th Cong., 2d Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-B

AUTHORIZING LEGISLATION

(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Sep. 3, 1954	Dredging and maintenance of a 30-foot channel and turning basin from Aberdeen to Cosmopolis.	H. Doc. 412, 83d Cong., 2d Sess.
	Sep. 3, 1954 July 14, 1960 as amended	Additional breakwater, 1,400 feet long, at Westhaven Cove. Westhaven Cove small boat basin.	H.Doc. 30, 84th Cong., 1st Sess. Sec. 107, P.L. 86-645. Authorized by Chief of Engineers Feb. 7, 1979 P.L. 99-662.
	Nov. 17, 1986	Improve project features with accompanying fish mitigation.	
6.	Mar. 2, 1945 Dec. 22, 1944 as amended July 14, 1960 as amended	LAKE CROCKETT, WA Small-boat basin. Construction, operation, and maintenance of recreation facilities. Change authorized channel depth from -18 mean lower low water to -25 mean lower low water by dredging.	H. Doc. 303, 77th Cong., 1st Sess. P.L. 78-534 Sec. 107, P.L. 86-645 Authorized by Chief of Engineers, Nov. 7, 1988.
7.		LAKE WASHINGTON SHIP CANAL, WA	
	June 25, 1910 Mar. 4, 1913	Provides for a double lock and fixed dam with gated spillway and necessary accessory works at entrance to Salmon Bay, dredging a channel from locks to deep water in Puget Sound, and excavation by local interests of a channel from locks into Lake Washington.	H. Doc. 953, 60th Cong., 1st Sess.
	Aug. 8, 1917 Sep. 22, 1922	Dredging below locks and revetting canal banks. Increased dimensions of channel between Puget Sound and locks and a 600-foot extension of lower guide pier.	H. Doc. 800, 64th Cong., 1st Sess. H. Doc. 324, 67th Cong., 2d Sess.
	June 26, 1934 1	Operating and care of locks and dam provided for with funds from War Department appropriations for Rivers and Harbors.	
	Aug. 30, 1935 2 Dec. 22, 1944 as amended July 24, 1956	Enlarge channel between locks and Lake Washington. Construction, operation, and maintenance of recreation facilities. Government Locks to be known as Hiram M. Chittenden Locks.	H. Doc. 140, 72d Cong., 1st Sess. P.L. 78-534 P.L. 84-779
8.	June 20, 1938	NEAH BAY, WA Rubblestone breakwater.	Rivers and Harbors Committee Doc. 51, 75th Cong., 2d Sess.
	Sep. 3, 1954	Reinforcement of existing revetment.	H. Doc 404, 83d Cong., 2d Sess.
10.	July 13, 1892	PUGET SOUND AND ITS TRIBUTARY WATERS, WA Maintenance of the rivers tributary to Puget Sound by snagging and dredging, and removal of floating debris from Seattle Harbor.	Annual Report for 1893, page 3425
11.	July 3, 1930	QUILLAYUTE RIVER, WA Jetty (5 feet high) on easterly side of mouth, and a dike on westerly side, to stabilize entrance.	H. Doc. 125, 71st Cong., 1st Sess.
	Mar. 2, 1945	Maintenance dredging to provide a channel 6 feet deep and of suitable width from ocean to within river mouth.	H. Doc. 218, 78th Cong., 1st Sess.
	Sep. 3, 1954	Raising jetty to 15 feet; channel 10 by 100 feet, 2,000 feet long; moorage basin. 3	H. Doc. 579, 81st Cong., 2d Sess
12.	Mar. 2, 1919	SEATTLE HARBOR, WA Maintenance of East and West Waterways 750 feet wide and 34 feet deep, and of Duwamish Waterway 20 feet deep and 150 feet wide as far south as Eighth Avenue South Bridge.	S. Doc. 313, 65th Cong., 3d Sess.

SEATTLE, WASHINGTON DISTRICT

TABLE 29-B
(Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Mar. 3, 1925 July 3, 1930 Aug. 30, 1935	Enlargement of Duwamish Waterway. Maintenance of East Waterway between 750-foot section and Spokane Street, and turning basin at junction of East and Duwamish Waterways.	H. Doc. 108, 68th Cong., 1st Sess. H. Doc. 126, 71st Cong., 2d Sess. H. Doc. 211, 72d Cong., 1st Sess.
	Oct. 12, 1996	East Waterway channel deepening.	P.L. 104-303
13.		SWINOMISH CHANNEL, WA	
	July 13, 1892	Channel 4 feet deep and 100 feet wide, and dike construction.	H. Doc. 31, 52d Cong., 1st Sess. and Annual Report for 1892, p. 2752
	Aug. 30, 1935	Enlargement of channel to present project dimensions.	S. Committee Print, 73rd Cong., 1st Sess.
	Oct. 23, 1962	Removal of navigation hazards at "Hole-in-the-Wall".	H. Doc. 499, 87th Cong., 2d Sess.
14.		TACOMA HARBOR, WA	
	June 13, 1902 July 3, 1930 Aug. 26, 1937	City Waterway Hylebos Waterway	H. Doc. 76, 56th Cong., 2d Sess. Rivers and Harbors Committee Docs. 25, 71st Cong., 2d Sess. and 91, 74th Cong., 2d Sess.
	Aug. 30, 1935	Training walls at mouth of Puyallup River (previously authorized by Public Works Administration Sep. 6, 1933)	Rivers and Harbors Committee Doc. 55, 72nd Cong., 2d Sess.
	Sep. 3, 1954	Blair Waterway extension.	H. Doc. 271, 84th Cong., 2d Sess.
	Oct. 23, 1962	Blair and Hylebos Waterways extensions.	S. Doc. 101, 87th Cong., 2d Sess.
	July 31, 1984	Modification by changes in pierhead and bulkhead lines.	H. Doc. 244, 98th Cong., 2d Sess.
	Nov. 17, 1986	Maintenance of the locally constructed Sitcum Waterway to depths of 40 and 35 feet.	P.L. 99-662
15.		WILLAPA RIVER AND HARBOR AND NASELLE RIVER, WA	
	July 27, 1916	Channel 24 feet deep, 200 feet wide in Willapa River, and 150 feet wide in the forks.	H. Doc. 706, 63d Cong., 2d Sess.
	Aug. 30, 1935 2	Maintenance of channel over bar to a depth of 26 feet and minimum width of 500 feet.	Rivers and Harbors Committee Doc. 41, 72d Cong., 1st Sess.
	Aug. 30, 1935 4	For cutoff channel at Narrows.	Rivers and Harbors Committee Doc. 37, 73rd Cong., 2d Sess.
	Mar. 2, 1945 Sep. 3, 1954	Channel from deep water in Palix River to Bay Center dock. Widen Willapa River channel to 360 and 250 feet between South Bend and the forks; Tokeland and Nahcotta basins; and Naselle River clearance. Willapa River and Harbor redesignated as Willapa River and Harbor and Naselle River.	H. Doc. 481, 76th Cong., 2d Sess. H. Doc. 425, 83d Cong., 2d Sess.
16.		LINCOLN PARK BEACH, SEATTLE, WA	
	Oct. 23, 1962 as amended	250-foot rock revetment and 2,550 feet of sand and gravel nourishment. Periodic monitoring and replenishing beach nourishment.	Sec. 103, P.L. 87-874 Authorized by Chief of Engineers Oct. 18, 1983
17.		CEDAR RIVER, RENTON, WA	
	June 30, 1948 as amended	Dredging of lower river channel and raising of levees and floodwalls along both river banks.	Sec. 205, P.L. 80-858 Authorized by Chief of Engineers June 1, 1998
18.		HOWARD A. HANSON DAM, WA	
	May 17, 1950	Eagle Gorge flood control dam on Green River.	H. Doc. 271, 81st Cong., 1st Sess.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-B
(Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Aug. 6, 1958	Redesignation of project as Howard A. Hanson Dam.	P.L. 85-592
20.	June 30, 1948 as amended	LONG ROAD, CHEHALIS RIVER, WA Levee protection.	Sec. 205, P.L. 80-858 Authorized by Chief of Engineers July 17, 2000
21.	Aug. 17, 1999	MILO CREEK, KELLOGG, ID Reimburse State of Idaho for partnering in flood control project.	Sec. 317, P.L. 106-53 WRDA 1999
22.	June 22, 1936	MUD MOUNTAIN DAM, WA Flood control dam on White River.	S. Committee Print, Puyallup River, WA, 74th Cong., 2d Sess. P.L. 78-534.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	
24.	June 22, 1936	STILLAGUAMISH RIVER, WA Improvement of flood channel by clearing and bank revetment at 26 sites; concrete weir at head of Cook Slough; and 2 cutoff channels in Cook Slough.	H. Doc. 657, 71st Cong., 3d Sess.
	June 28, 1938	Maintenance of improvements.	P.L. 75-761
25.	June 22, 1936	TACOMA, PUYALLUP RIVER, WA Channel improvement to protect people and industrial section of city of Tacoma.	S. Committee Print, Puyallup River, WA, 74th Cong., 2d Sess. P.L. 78-534.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	
26.	May 17, 1950	ALBENI FALLS DAM, ID Multi-purpose dam with powerhouse.	S. Doc. 9, 81st Cong., 1st Sess. P.L. 78-534.
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	
27.	July 24, 1946	CHIEF JOSEPH DAM - RUFUS WOODS LAKE, WA Multi-purpose dam and powerhouse on Columbia River at Foster Creek.	H. Doc. 693, 79th Cong., 2d Sess.
	June 30, 1948	Redesignation of the project as Chief Joseph Dam.	P.L. 858, 80th Cong., 2d Sess.
	July 9, 1952	Designation of reservoir as Rufus Woods Lake.	P.L. 469, 82d Cong., 2d Sess.
	Dec. 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	P.L. 78-534.
	Oct. 22, 1976 as amended	School facilities for education of dependents of construction personnel.	P.L. 94-587
	May 4, 1977		P.L. 95-26
28.	May 17, 1950	LIBBY DAM - LAKE KOOCANUSA, MT Multi-purpose dam and powerhouse, and reregulating facilities.	H. Doc. 531, 81st Cong., 2d Sess.
	Nov. 7, 1966	School facilities for education of dependents of construction personnel, Libby project.	P.L. 89-789
	Jan. 2, 1968	Airport facility at Kelley Flats, MT.	P.L. 90-239 5
	Aug. 13, 1968	Design standards for relocation of Montana State Highway 37 to be those adopted by State of Montana pursuant to provisions of Highway Safety Act of 1966.	P.L. 90-483 6
	June 19, 1970	Participation with State of Montana in construction,	P.L. 91-282 7

SEATTLE, WASHINGTON DISTRICT

TABLE 29-B
(Continued)

AUTHORIZING LEGISLATION

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
	Dec. 31, 1970	operation and maintenance of fish hatchery facilities. Designation of lake formed by the waters impounded by Libby Dam as Lake Koocanusa.	P.L. 91-625
	Dec. 31, 1970	Design and construction of sewage collection and sewage treatment facility as part of relocation of municipal facilities of Rexford, MT; and compensation for railroad employees suffering long-term economic injury through reduction of income as result of the relocation of rail transportation facilities due to the construction of Libby Dam.	P.L. 91-611
	Mar. 7, 1974	Phase I design memorandum stage for installation of power generating facilities at Libby Reregulating Dam.	S.Doc. 29, 93d Cong., 1st Sess., P.L. 93-251
	Mar. 7, 1974	Construction of fish production measures to compensate for fish losses attributed to the project, and for acquisition of necessary real estate, construction of access roads and utilities (amends P.L. 91-282 by increasing limitation from \$750,000 to \$4,000,000).	P.L. 93-251
	Mar. 7, 1974	Acquisition of land (not to exceed \$2,000,000) for prevention of wildlife grazing losses caused by the project.	P.L. 93-251
	Mar. 7, 1974	Reimbursement (not to exceed \$350,000) to Boundary County, ID, for reconstruction of Deep Creek Bridge made necessary by duration of high flows during drawdown operations at Libby Dam.	P.L. 93-251
	Mar. 7, 1974	Compensation (not to exceed \$1,500,000) to Drainage Districts and owners of leveed and unleveed lands in Kootenai Flats, Boundary County, ID, for damages caused by duration of higher flows during drawdown operations at Libby Dam.	P.L. 93-251
	Oct. 22, 1976	Amends P.L. 93-251 by increasing limitation from \$350,000 to \$380,000 for reimbursement to Boundary County, ID, for reconstruction of Deep Creek Bridge.	P.L. 94-587
	Nov. 17, 1988	Alleviate low water impact on existing facilities and protect Indian archeological sites exposed during course of operations, at an estimated cost of \$750,000.	H. Doc. 1098, 100th Cong., 2d Sess. P.L. 100-676
29.	Nov. 17, 1986 as amended	DEEPWATER SLOUGH, WA Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers June 24, 1999
30.	Oct. 12, 1996	GOLDSBOROUGH CREEK, WA Aquatic ecosystem restoration.	Sec. 206, P.L. 104-303 Authorized by Chief of Engineers August 14, 2000
31.	Nov. 17, 1986 as amended	HOWARD A. HANSON DAM, WA Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers August 11, 2000
32.	Nov. 17, 1986 as amended	LAKE WASHINGTON SHIP CANAL, WA Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers October 22, 1999

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-B

AUTHORIZING LEGISLATION

(Continued)

See Section in Text	Date Authorizing Act	Project and Work Authorized	Documents
33.	Nov. 17, 1986 as amended	TURNING BASIN #3, SEATTLE, WA Environmental restoration.	Sec. 1135, P.L. 99-662 Authorized by Chief of Engineers July 26, 1999
1.	Permanent Appropriations Repeal Act.	5.	Supplemental Appropriations Act of 1968, Section 502.
2.	Included in Public Works Administration program.	6.	Flood Control Act of 1968, Section 212.
3.	Maintenance of these items, as well as sandspit north of James Island, is included in this modification.	7.	River Basin Monetary Authorization and Miscellaneous Civil Works Amendments Act of 1970, Section 7.
4.	Included in Emergency Relief program, May 28, 1935.		

TABLE 29-C

OTHER AUTHORIZED NAVIGATION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2001		Operation And Maintenance	
			Construction			
Anacortes Harbor, WA	Completed	1999	\$222,345	6	\$1,207,484	7
Anacortes Navigation Channel, WA 1	Completed	1977	825,263	8	-	
Bellingham Harbor, WA (I&J Street Waterway)1	Completed	1966	125,634	9	-	
Blaine Harbor, WA	Completed	1958	346,650		-	
Columbia River, Wenatchee to Kettle Falls, WA	Completed	1923	274,391	10	7,693	
East Bay Small Boat Basin, Olympia, WA1	Completed	1985	1,619,956	11	-	
Ediz Hook, WA	Completed	1999	5,878,740	12	2,085,838	13
Edmonds Harbor, WA2	Completed	1987	-		224,756	
Flathead River, MT	Completed	1901	9,811		-	
Grays Harbor, Point Chehalis, WA3	Completed	1998	1,421,000		-	
Hammersley Inlet, WA	Completed	1950	9,000		10,683	
Hoquiam River, WA	Completed	1950	18,921	14	5,316	
Kenmore Navigation Channel, WA1	Completed	1998	946,000		925,342	
Keystone Harbor, Admiralty Inlet, WA1	Completed	1993	264,000	15	-	
Kingston Harbor, WA	Completed	1967	262,570	16	5,000	17
Kootenai River, ID and MT	Completed	1933	9,255		5,643	
Mats Mats Bay, WA1	Completed	1970	137,679	18	-	
Neah Bay, WA1	Completed	1997	3,874,920	19	-	
Olympia Harbor, WA	Completed	2000	337,709	20	1,071,162	21
Okanogan and Pend Oreille Rivers, WA	Abandoned	1913	63,879		7,634	
Polson Bay, Flathead Lake, MT	Completed	1918	4,491		259	
Port Angeles Harbor, WA4	Completed	1960	470,873		-	
Port Gamble Harbor, WA	Completed	1953	11,911	22	13,337	
Port Orchard Bay, WA5	Completed	1928	42,804		-	
Port Townsend, WA	Completed	1999	480,899	23	118,656	
Prototype Breakwater Test Program, WA1	Completed	1985	1,461,590		-	
Shilshole Bay, Seattle, WA	Completed	1962	2,575,091	24	-	
Skagit River, WA	Completed	1950	102,330	25	36,258	
Squalicum Small Boat Harbor, Bellingham, WA1	Completed	1981	1,744,025	26	-	
Waterway Connecting Port Townsend and Oak Bay, WA	Completed	1987	73,322		378,753	
Westhaven Cove Small Boat Basin, WA1	Completed	1981	2,000,000	27	-	

SEATTLE, WASHINGTON DISTRICT

TABLE 29-C OTHER AUTHORIZED NAVIGATION PROJECTS
(Continued)

1. Authorized by Chief of Engineers under authority of Section 107, Public Law 86-645.	15. Excludes \$114,272 contributed funds expended.
2. Constructed by local interests at a cost of \$415,000. Excludes \$1,000 Coast Guard funds expended for new work. Corps of Engineers is responsible for maintenance.	16. Excludes \$390,753 contributed funds and \$3,000 Coast Guard funds expended.
3. Authorized by Chief of Engineers under authority of Section 111, Public Law 90-483.	17. Mitigation of shore damages study.
4. Maintenance by Port of Port Angeles.	18. Excludes \$28,288 contributed funds and \$9,000 Coast Guard funds expended.
5. No maintenance required.	19. Excludes \$528,188 contributed funds expended.
6. Excludes \$2,000 Coast Guard funds and \$59,524 contributed funds expended.	20. Includes \$183,257 appropriated and expended for previous projects. Excludes \$105,467 Public Works Administration funds expended.
7. Excludes \$5,000 contributed funds expended.	21. Includes \$14,418 appropriated and expended for previous projects.
8. Excludes \$457,200 contributed funds expended.	22. Excludes \$21,260 contributed funds expended.
9. Excludes \$2,500 Coast Guard funds expended.	23. Excludes \$92,423 contributed funds expended.
10. Includes \$8,005 appropriated and expended for previous project.	24. Excludes \$15,000 Coast Guard funds expended.
11. Excludes \$2,184,766 contributed funds expended.	25. Includes \$2,500 appropriated and expended for previous project.
12. Excludes \$385,850 contributed funds expended.	26. Excludes \$1,570,886 contributed funds expended.
13. Excludes \$229,501 contributed funds expended.	27. Excludes \$1,230,035 contributed funds expended.
14. Excludes \$32,373 Emergency Relief funds expended.	

TABLE 29-D OTHER AUTHORIZED SHORE PROTECTION PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2001		Operation and Maintenance
			Construction		
Lummi Shore Road, WA	Completed	1999	1,980,391	1	-

1. Excludes \$924,195 contributed funds expended.

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2001		Contributed Funds
			Construction		
American Lake, Vicinity of Fort Lewis, WA1	Completed	1957	\$59,582		\$10,000
Bear Creek, Flathead County Bridge, near Essex, MT2	Completed	1971	1,424		-
Bitterroot River, Florence, MT2	Completed	1990	180,950		49,759
Blackfoot River, Matt Little Road, MT2	Completed	1964	17,836		-
Bogachiel River, Highway 101, near Forks, WA2	Completed	1981	156,000		-
Bogachiel River, Undie Road, Forks, WA2	Completed	1981	57,000		-
Cedar River, King County, WA3	Completed	1953	3,229		-
Cedar River, Renton, WA2	Completed	1949	32,264		-
Chehalis River, City of Chehalis Raw Water Pump house, WA2	Completed	1966	35,454		-
Chehalis River, Independence Road, Thurston County, WA2	Completed	1965	47,916		-
Chehalis River, Montesano, WA2	Completed	1977	140,080		-
Chehalis River at South Aberdeen and Cosmopolis, WA	Completed	1998	8,301,833	5	1,538,784
Clallam Bay, Sekiu, WA2	Completed	1977	48,698		-
Clallam Bay at Sekiu, Clallam County, WA2	Completed	1994	178,800		39,818
Clallam River, Highway 112, WA2	Completed	1981	43,500		-
Clark Fork River, near Garrison, MT2	Completed	1993	80,611		16,973

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last	Cost to Sep. 30, 2001		Contributed Funds
		Full Report See Annual Report For	Construction		
Clark Fork River, Drummond, MT2	Completed	1978	18,660		-
Clark Fork River, Missoula, MT2	Completed	1978	31,548		-
Clark Fork River, Superior, MT2	Completed	1971	28,357		-
Clark Fork River, Vicinity of Plains, MT2	Completed	1950	27,947		-
Clearwater River, Jefferson County Road, WA2	Completed	1968	50,000		24,728
Clearwater River, Queets River Bridge, WA2	Completed	1950	49,165		-
Coeur d'Alene, Spokane River, ID	Completed	1941	152,872		-
Coeur d'Alene River, Springston, ID2	Completed	1950	25,452		-
Coffee Creek, WA3	Completed	1966	15,000		-
Columbia River Basin, Local Protection Projects, ID, MT, and WA					
Clark Fork River, Missoula, MT	Completed	1983	384,862	6	13,500
Lightning Creek, Clark Fork, ID	Completed	1959	42,726		-
Deschutes River, Gleason Road Bridge near Tumwater, WA2	Completed	1965	26,292		-
Deschutes River, Rich Road Bridge, near East Olympia, WA2	Completed	1967	22,956		-
Dungeness River, Area 5, WA2	Completed	1950	2,155		2,155
Dungeness River, Area 8, WA2	Completed	1950	2,895		2,895
Dungeness River, Clallam County, WA1	Completed	1964	52,040	7	-
Dungeness River, Sequim, WA2	Completed	1981	99,000		-
Dungeness River, Clallam County, WA2	Completed	1986	47,500		-
Dungeness River, Taylor Cut-off Road, WA2	Completed	1961	14,093		3,314
Elwha Klallam Reservation, Elwha River, WA1	Completed	1991	1,455,023		119,449
Elwha River, Clallam County, WA2	Completed	1951	17,303		-
Entiat River, WA3	Completed	1971	49,300		-
Entiat River, Chelan County, WA2	Completed	1978	38,000		-
Flathead River, MT2	Completed	1972	20,940		-
Flathead River, Bradley Channel Area, MT2	Completed	1955	26,265		-
Flathead River, near Kalispell, MT1	Completed	1995	81,500		13,467
Flathead River, near Kalispell, MT2	Completed	1948	33,347		-
Flathead River, Old Steel Bridge, near Kalispell, MT2	Completed	1964	13,438		-
Flathead River (North Fork), MT	Completed	1999	79,105		-
Flower and Parmenter Creeks, MT 3	Completed	1950	2,320		-
Foster Creek, West Fork, WA 2	Completed	1958	19,513		-
Foster Creek Road, Douglas County, WA2	Completed	1962	50,000		-
Green River between Kent and Auburn, WA and Allentown, WA2	Completed	1972	24,605		-
Green River, State Highway 181, WA2	Completed	1976	27,001		-
Henderson Bay, Purdy, WA2	Completed	1977	37,359		-
Hoh River, County Road 216, WA2	Completed	1980	143,000		-
Hoh River, U.S. Highway 101, WA2	Completed	1980	194,000		-
Hoh River Road, Jefferson County, WA (HO 1360)2	Completed	1956	22,082		21,807
Hoh River Road, Jefferson County, WA (HO 1361)2	Completed	1961	11,916		-
Hoh River Road, Jefferson County, WA (HO 1362)2	Completed	1964	\$41,622		-
Hoh River, near Forks, WA2	Completed	1983	173,000	8	-
Hoko River, Sekiu, WA2	Completed	1977	21,083		-
Hood Canal, Hoodspout, WA2	Completed	1977	59,812		-
Hoquiam River, WA2	Completed	1977	52,600		-
Horseshoe Bend, WA1	Completed	1997	204,989		\$9,146
Jackman Creek, Skagit River, WA 3	Completed	1962	24,000		-
Kootenai River, Bonners Ferry, ID2	Completed	1950	42,325		-
Kootenai River, Kootenai Flats Area, District #1, ID2	Completed	1965	14,885		-
La Conner, WA	Completed	1996	955,000	9	246,889
La Conner, Swinomish Channel, WA2	Completed	1979	40,525		-
Lower Green River, King County, WA1	Completed	1993	912,000		120,518
Lummi Shore Road, Whatcom County, WA2	Completed	1995	482,000		134,772
Methow River, WA (MET 1-74)2	Completed	1974	15,700		-
Methow River, WA (MET 2-74)2	Completed	1974	11,200		-
Methow River, WA (MET 3-74)2	Completed	1974	13,450		-
Methow River, Barclay Canal, WA2	Completed	1976	19,810		-
Methow River, State Highway No. 16 Bridge, Twisp, WA2	Completed	1949	31,783		-
Methow River, Twisp-Carlton Highway, Vicinity of					

SEATTLE, WASHINGTON DISTRICT

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last	Cost to Sep. 30, 2001	
		Full Report See Annual Report For	Construction	Contributed Funds
Twisp, WA2	Completed	1951	33,300	6,786
Methow River, Vicinity of Pateros, WA2	Completed	1951	11,726	11,726
Mineral Creek, Lewis County, WA2	Completed	1972	11,836	-
Missoula, MT (Sewage Treatment Plant)2	Completed	1965	50,000	-
Moclips River, Moclips, WA2	Completed	1977	17,608	-
Naches River, Naches, WA2	Completed	1982	59,000	-
Neah Bay, Clallam County, WA2	Completed	1991	253,995	78,433
Newaukum River, Lewis County, Hamilton, WA2	Completed	1972	24,792	-
Nisqually River, near Elbe, WA2	Completed	1948	37,636	-
Nisqually River, Thurston County, WA2	Completed	1960	26,790	-
Nisqually River, Vicinity of Elbe, WA2	Completed	1952	19,345	-
Nooksack River, WA3	Completed	1948	24,006	-
Nooksack River, Acme, WA2	Completed	1985	77,300	-
Nooksack River, Guide Bridge Location, WA2	Completed	1950	6,075	6,075
Nooksack River, Middle Fork, Deming, WA2	Completed	1986	79,000	-
Nooksack River, above Highway 12 Bridge, WA2	Completed	1960	10,807	-
Okanogan River, WA2	Completed	1974	10,100	-
Okanogan River at Outlet of Osoyoos Lake, WA3	Completed	1949	52,100	-
Okanogan River, Tonasket Creek and Osoyoos Lake, WA3	Completed	1953	7,987	-
Okanogan River, Omak, WA1	Completed	1981	2,231,030	-
Okanogan River, Oroville, WA1	Completed	1982	1,787,630	-
Pilchuck River, WA3	Completed	1948	25,401	-
Pilchuck River, WA2	Completed	1985	81,000	-
Pilchuck River, WA2	Completed	1971	10,713	-
Pilchuck River, Everett, WA2	Completed	1980	54,000	-
Pilchuck River, State Highway 92, Granite Falls, WA2	Completed	1971	30,973	-
Placer Creek, ID	Completed	1986	5,865,000	-
Powell County High School, Deer Lodge, MT2	Completed	1964	11,291	-
Puyallup River, WA	Completed	1937	50,000	10
Pysht River, Sekiu, WA2	Completed	1977	86,160	-
Queets River, Jefferson County Sewage Lagoon, WA2	Completed	1981	125,000	-
Quillayute River, Quileute Tribal Float and Bridge, WA2	Completed	1972	39,300	-
Quinalt River, Grays Harbor, WA2	Completed	1981	208,000	-
Quinalt River Road, Jefferson County, WA2	Completed	1961	15,928	4,943
Rock Creek, Granite County, MT2	Completed	1974	49,657	-
Rock Creek, Missoula County, MT2	Completed	1973	31,565	-
Rock Creek Road, MT2	Completed	1980	50,000	-
Rye Creek, MT2	Completed	1973	22,819	-
St. Maries, St. Joe River, ID	Completed	1942	357,698	-
St. Regis River, MT3	Completed	1942	7,234	11
St. Regis River at St. Regis, MT3	Completed	1951	2,983	-
Sammamish River, WA	Completed	1967	2,582,536	12
Sauk River, WA2	Completed	1974	20,860	-
Sauk River, Skagit County, WA2	Completed	1989	119,600	32,778
Shelton Creek, WA1	Completed	1979	872,021	-
Skagit River at Burlington Bend, WA2	Completed	1949	50,000	-
Skagit River, Cape Horn Road, WA2	Completed	1966	46,489	-
Skagit River, Deadman's Slough, WA2	Completed	1980	93,000	-
Skagit River, Pressentin Creek, WA2	Completed	1980	137,000	-
Skagit River, South Skagit Highway, WA2	Completed	1963	40,753	-
Skagit River, South Skagit Highway, WA (Job 66-1)2	Completed	1966	17,719	-
Skagit River, South Skagit Highway, WA (Job 67-1)2	Completed	1967	50,000	24,488
Skykomish River, North Fork, Index, WA2	Completed	1981	222,500	-
Snohomish River, Lowell-Snohomish River Road, WA2	Completed	1969	44,227	-
Snohomish River, Snohomish, WA2	Completed	1970	60,900	14,307
Snoqualmie River, West Snoqualmie, WA2	Completed	1977	15,565	-
Soleduck River Bridge, WA2	Completed	1961	16,437	1,960
Soleduck River, near Mora Road Bridge, WA2	Completed	1963	11,433	-
Spokane River, Spokane, WA 2	Completed	1989	122,138	79,311
Startup, Skykomish and Wallace Rivers, WA1	Completed	1970	271,713	-
Stillaguamish River, South Fork, Mountain Loop Highway, near Robe, WA2	Completed	1964	50,000	46,182
Stillwater River, MT2	Completed	1973	17,457	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-E OTHER AUTHORIZED FLOOD CONTROL PROJECTS
(Continued)

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2001		Contributed Funds
			Construction		
Stillwater and Whitefish Rivers, MT2	Completed	1977	34,513		-
Strong Creek, Hope, ID2	Completed	1970	8,442		-
Tahola, WA2	Completed	1979	223,893		-
Upper Puyallup River, WA4	Completed	1938	71,495	13	13,704
Willapa River, Raymond, WA2	Completed	2000	88,504		32,101
Wynoochee Lake, WA	Completed	1994	23,494,445	14	-
Wynoochee River, County Road 141, WA2	Completed	1976	111,072		-
Wynoochee River, near Montesano, WA2	Completed	1969	50,000		21,311
Wynoochee River, near Montesano, WA (WR-1-72)2	Completed	1972	50,000	15	-
Yakima, Yakima River, WA	Completed	1948	381,961		-
Yakima River, Cle Elum, WA2	Completed	1949	8,047		-
Yakima River, below mouth of Teanaway River near Cle Elum, WA2	Completed	1947	48,272		-
Yakima River, West Richland, WA2	Completed	1977	36,768		-
Yakima River, Yakima WA2	Completed	1983	125,500	16	-

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. Authorized by Chief of Engineers under authority of Section 205, Public Law 858, 80th Congress, as amended. 2. Authorized by Chief of Engineers under authority of Section 14, Public Law 526, 79th Congress, as amended. 3. Authorized by Chief of Engineers under authority of Section 2, Public Law 406, 75th Congress, as amended. 4. Authorized by Works Progress Administration Project No. OP 65-93-917. 5. Includes \$2,212,000 for Preconstruction Engineering and Design, appropriated and expended. 6. Includes \$7,850 appropriated and expended for recreation facilities at completed project (Code 710). 7. Excludes \$340,066 Public Works Acceleration Act funds expended. 8. Productive Employment Appropriation Act of 1983 (P.L. 98-8). Excludes \$189,000 Federal Highway Administration funds expended. | <ol style="list-style-type: none"> 9. Includes \$183,000 for Preconstruction Engineering and Design, appropriated and expended. 10. Emergency Relief funds, Works Progress Administration. 11. Excludes amount expended by Works Progress Administration which is not available. 12. Excludes \$1,000 Coast Guard funds expended. 13. Emergency Relief funds, Works Progress Administration. 14. Includes \$102,200 appropriated and expended for recreation facilities at completed project (Code 710). Excludes \$17,070,670 for project maintenance and \$66,678 for Maintenance and Operation of Dams and Other Improvements of Navigable Waters, appropriated and expended. 15. Excludes \$17,988 Office of Emergency Planning funds expended. 16. Includes \$118,000 expended under productive employment appropriation act of 1983 (P.L. 98-8). |
|---|--|

TABLE 29-F OTHER AUTHORIZED MULTIPLE-PURPOSE POWER PROJECTS

Project	For Last Full Report See Annual Report For	Cost to Sep. 30, 2001		
		Construction	Operation and Maintenance	
Priest Rapids Dam, Columbia River, WA	1954	\$350,000	1	-

1. For partnership planning. Excludes funds expended for acquisition of lands under partnership arrangement for Priest Rapids and Wanapum Dams, in accordance with Public Law 544, 83d Congress. Project constructed by Grant County Public Utility District.

SEATTLE, WASHINGTON DISTRICT

TABLE 29-G OTHER AUTHORIZED ENVIRONMENTAL PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2001	
				Contributed Funds	
Porter Levee, WA 1	Completed	2000	149,266	17,630	
Puget Creek, WA 1	Completed	2000	104,478	4,650	
Sammamish River Restoration, WA 1	Completed	1995	326,900	64,333	
Sammamish River Weir Restoration, WA 1	Completed	2000	178,351	35,929	
Thornton Creek, WA 1	Completed	2000	268,385	25,902	

1. Section 1135, Public Law 99-662, as amended.

TABLE 29-H OTHER PRECONSTRUCTION ENGINEERING AND DESIGN PROJECTS

Project	Status	For Last Full Report See Annual Report For	Cost to Sep. 30, 2001		
			Federal Funds Expended		
Blair and Sitcum Waterways, Tacoma Harbor, WA	Under Const.	1989	\$1,310,000		1 2
East, West and Duwamish Waterways, Seattle Harbor, WA	Deferred	1988	663,000		
Grays Harbor, Chehalis and Hoquiam Rivers, WA	Under Const.	1989	5,670,000		3
Yakima River at Union Gap, WA	Deferred	1988	502,000		

1. Includes \$300,000 appropriated and expended under Section 101(c).

2. \$480,000 of which is included in construction costs.

3. \$3,530,000 of which is included in construction costs.

TABLE 29-I OTHER AUTHORIZED PROJECTS

Project	Status	For Last Full Report See Annual Report For	Construction	Cost to Sep. 30, 2001	
				Contributed Funds	
Aquatic Plant Control	Completed	1997	\$6,023,906	-	
Green River, King County, WA	Completed	1985	498,320	-	
Oak Harbor, WA	Completed	1983	519,000	-	

TABLE 29-J DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended	
Calispell Creek, WA1	1968	1968	\$25,000	14	-
Columbia River Basin, Local Protection Projects, ID, MT, and WA					
Crab and Wilson Creeks, WA2	1958	1964	9,000	14	-
Entiat River, WA3	1958	1986	-	-	-
Methow River, WA3	1958	1986	-	-	-
Okanogan River, WA3	1958	1986	1,100	14	-
St. Regis River, MT4	1958	1978	1,400	14	-
Wenatchee River, WA4	1958	1978	-	-	-
Yakima River at Ellensburg, WA3	1980	1986	44,300	14, 15	-
Everett Harbor and Snohomish River, WA (RH 68) 6	1973	1990	52,000	14	-
Flathead River at Kalispell, MT7	1981	1995	300,000	14	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-J
(Continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For	Date Deauthorized	Federal Funds Expended	Contributed Funds Expended
Grays Harbor and Chehalis River, WA (RH 48) (Unconstructed Portion) 6,8	1962	1990	-	-
Grays Harbor and Chehalis River, WA (RH 30) 6,9	1933	1990	35,834	\$35,834
Hammersley Inlet, WA (RH 30) (Unconstructed Portion) 4,10	1950	1978	-	-
Hoquiam, Aberdeen, and Cosmopolis, Chehalis River, WA 5	1948	1952	83,631	14
Olympia Harbor, WA (RH 45) 6	1973	1990	21,606	14,16
Port Angeles Harbor, WA (RH 35) 4	1960	1977	-	-
Port Gamble Harbor, WA (RH 35) 4	1953	1977	-	-
Quillayute River, WA (RH 30) (Unconstructed Portion) 3,11	1986	1986	-	-
Seattle Harbor, WA (RH 30) (Unconstructed Portion) 3,12	1986	1986	-	-
Skagit River, WA (RH 10) (Unconstructed Portion) 4,13	1950	1978	-	-
Skagit River, WA (RH 19) 4	1950	1978	-	-
Skagit River, WA (Avon Pass) 6	1968	1990	54,468	14
Skagit River, WA (Levee and Channel Improvements) 7	1982	1995	1,934,792	-
Spokane River, Spokane, WA 3	1939	1986	2,944	14
Stillaguamish River, WA (RH 45) 3	1946	1986	4,234	17
Wenatchee, Canyons 1 and 2, WA 6	1978	1990	544,331	14
Willapa River at Raymond, WA 7	1982	1995	508,130	14, 18
<div> <div> 1. Authority for project expired October 27, 1968. 2. Authority for project expired July 1964. 3. Deauthorized under authority of Section 1002, P.L. 99-662 dated November 17, 1986. 4. Deauthorized under authority of Section 12, P.L. 93-251 dated March 7, 1974. 5. Authority for project expired in October 1952. 6. Deauthorized under authority of Section 1001 (b) (1), P.L. 99-662 dated November 17, 1986. 7. Deauthorized under authority of Section 1001 (b) (2), P.L. 99-662 dated November 17, 1986. 8. 2200 linear feet of revetment at Point Chehalis. </div> <div> 9. 16-foot channel from Cosmopolis to Montesano. 10. Deepening shoal area near Cannery Point from 10 to 13 feet. 11. Groin feature of the project. 12. Settling basin at upper end of existing Duwamish Waterway, about 1.4 miles above 14th Avenue South Bridge. 13. 5500-foot extension of training dike. 14. Preconstruction planning only. 15. Includes \$14,300 expended for restudy, FY 1970. 16. Includes \$18,700 expended for restudy, FY 1968-1973. 17. Economic restudy only. 18. Includes \$8,888 expended for restudy, FY 1967-1972. </div> </div>				

TABLE 29-K

**LAKE WASHINGTON SHIP CANAL, WA PRINCIPAL
FEATURES OF DOUBLE LOCK AND DAM
(SEE SECTION 7)**

Section		Large Lock	Small Lock
Miles above mouth		1 ¼	1 ¼
Clear width of chamber	Feet	80	28
Maximum available length	Feet	760	123
Lift	Feet	26	26
Depth on upper miter sill	1 Feet	33 ½	16
Depth on intermediate miter sill	2 Feet	29	-
Depth on lower miter sill	2 Feet	29	16
Character of foundation		Clay	Clay
Kind of dam		Fixed dam with gated spillway	Fixed dam with gated spillway
Type of construction		Concrete	Concrete
Year completed		1916	1916
Cost		3	3
<div> <div> 1. Low water in upper pool. 2. Mean lower low water in Puget Sound. </div> <div> 3. Cost of double lock and dam was \$2,382,200 and the emergency gates, completed in 1923, \$262,300. </div> </div>			

SEATTLE, WASHINGTON DISTRICT

**TABLE 29-L FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 205,
(Continued) PUBLIC LAW 858, 80TH CONGRESS, AS AMENDED
(PREAUTHORIZATION)**

Study Identification	Fiscal Year Costs (2001)	
Cataldo, ID	\$20,620	
Conconully, WA	19,322	
Concrete, WA	8,878	
Northbend, WA	77,522	
Section 205 Coordination	15,727	
Snoqualmie River, WA	142,575	
Stillaguamish River Valley, Stanwood, WA	21,672	1
St. Maries, ID	118,971	
TOTAL	\$425,287	

1. Excludes \$6,192 contributed funds expended.

**TABLE 29-M FLOOD CONTROL ACTIVITIES PURSUANT TO SECTION 14,
PUBLIC LAW 526, 79TH CONGRESS, AS AMENDED
(PREAUTHORIZATION)**

Study Identification	Fiscal Year Costs (2001)	
Bogachiel River, WA	\$55,827	
Coeur d'Alene River (South Fork), Wallace, ID	62,866	1
Goldsborough Creek, Shelton, WA	16,863	
Independence Road, Centralia, WA	50,408	
Sauk-Suiattle near Darrington, WA	18,073	
Section 14 Coordination	15,969	
Upper Hoh Road, Forks, WA	6,332	1
TOTAL	\$226,338	

1. Resumption.

TABLE 29-N ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Study Identification	Fiscal Year Costs (2001)	
Bear Creek Restoration, WA	\$7,860	2
Carpenter Creek, WA	8,112	2
Cherry Creek, ID	30,206	3
Codiga Farms, WA	122,160	2
Hanson Anadromous Fish and Wildlife, WA	0	1 2
Harper Estuary, WA	9,112	3
Initial Appraisals, General	14,471	2
Issaquah Creek, WA	7,875	3
Little Baker River, WA	14,447	3
Loomis Lake Restoration, WA	4,830	3
Metzler/O'Grady Side Channels, WA	0	2
Nooksack River (South Fork), WA	6,078	3
Preliminary Restoration Plans	27,423	3
Seahurst Park, Burien, WA	993	3
Section 206 Coordination	38,113	3
Section 1135 Coordination	17,377	2
Snoqualmie River (Mid Fork), WA	13,287	3
Squak Valley Park, WA	2,179	3
Stillaguamish Old Channel, WA	38,594	2
Sweeney Creek, WA	80,705	3

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR 2001

TABLE 29-N ENVIRONMENTAL ACTIVITIES UNDER SPECIAL AUTHORIZATION

Study Identification		Fiscal Year Costs (2001)	
Union Slough, WA		222,695	2
Whatcom Creek Estuary, WA		1,419	2
Willapa River, WA		28,660	2
Wynoochee Anadromous Fish, WA		9,760	2
TOTAL		\$706,356	
<hr/>			
1.	Construction initiated in FY 2001.	3.	Section 206, Public Law 104-303.
2.	Section 1135, Public Law 99-662, as amended.		

WALLA WALLA, WA, DISTRICT

This U.S. Army Corps of Engineers (Corps), Walla Walla District (District), consists of all Columbia River drainage and tributaries thereto between the head of the McNary Reservoir (Lake Wallula) (river mile 345.4) and Umatilla Bridge (river mile 290.5) below McNary Lock and Dam, except the Yakima River Basin above the Van Giesen Street Bridge (river mile 8.4) near

Richland, WA. The primary tributary drainage area is the Snake River that includes more than 107,000 square miles in six states: Washington, Oregon, Idaho, Wyoming, and small portions of Nevada and Utah.

IMPROVEMENTS

Flood Control

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Flood Control

1. COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS

Location. Improvements included in this project are along the Columbia River and its tributaries.

Existing project. The Flood Control Act of 1950 approved a general comprehensive plan for the Columbia River Basin for flood control and other purposes based on plans in H. Doc. 531, 81st Congress, 2nd Session, and authorized \$75 million to be appropriated for partial accomplishment of certain projects. From that authorization, an amount (not to exceed \$15 million) was allotted for construction of local flood protection works throughout the Columbia River Basin, subject to conditions that all work undertaken pursuant to authorization would be economically justified prior to construction, and local cooperation specified in the Flood Control Act of 1936, as amended, should be required (see tables 30-B and H, for projects in the District).

Local cooperation. Section 3, Flood Control Act of June 22, 1936, applies.

Operations during the fiscal year (FY). No projects were deauthorized.

2. INSPECTION OF COMPLETED FLOOD CONTROL PROJECTS

Federal law requires local interests to maintain and operate completed local protection projects in accordance with regulations prescribed by the Secretary of the Army. Inspections were made to determine the extent of compliance and to advise local interests, as necessary, of measures required to correct deficiencies (see table 30-I for inspections made during the FY).

The FY costs were \$30,172. Total costs in September 30, 2001, were \$2,974,559.

3. JACKSON HOLE, WY

Location. This project is located on the banks of the Snake River, Teton County, west of Jackson, WY.

Existing project. On the Snake River, approximately 23.5 miles of Federally-constructed levees consist of the following: (1) On the right

bank: a series of levees, off-set levees, and bank protection structures, all with full riprap protection from 10 miles upstream of the Jackson-Wilson Bridge to 3.5 miles below the bridge for a total of 13.5 miles; (2) On the left bank: a series of Federally-constructed levees and bank protection structures, all with full riprap protection, extending from 10 miles upstream of the Jackson-Wilson Bridge to 5 miles upstream. It resumes 1.5 miles immediately upstream of the same bridge and continues to 3.5 miles below the bridge for a total of 10 miles. In addition, a series of Federal and non-Federal constructed levees, with a total length of approximately 5 miles, most having some or full riprap protection, are interspersed along both banks of the Snake River from Highway 26 Bridge to 4 miles downstream of the Jackson-Wilson Bridge.

On the Gros Ventre River, approximately 2 miles of riprap protected levees on the left bank from 1.5 miles west of Cattlemen's Bridge and extending to 0.5 miles east of the same bridge. On the right bank, a series of levees extending from 0.5 miles west of Cattlemen's Bridge to approximately 0.3 miles east of the same bridge.

The Project is authorized by Public Law (PL) 81-516, Flood Control Act of 1950, for flood control protection by channel improvements consisting of channel rectification, levees, and revetments along the Snake River in the vicinity of Wilson, WY. The PL 104-303 modified the original PL 81-516 to ensure the operation, maintenance, modifications, and additions to the project become Federal responsibility.

Local cooperation. Non-Federal sponsors pay the initial \$35,000 in cash or materials of any such costs expended in any 1 year, plus inflation as of the date of enactment of the Water Resources Development Act of 1986.

Since 1978, \$61,731,000 (adjusted to October 2001 price index) in potential flood damages has been prevented by the levees.

Operations during FY. Teton County, under their Local Cooperative Agreement, worked with the Corps performing levee maintenance. The FY costs were \$1,783,387.

4. LUCKY PEAK LAKE, ID

Location. This project is located on the Boise River in southwestern Idaho about 10 miles southeast of the city of Boise, ID.

Existing project. The project includes a rolled earthfill dam about 250 feet above the streambed and 1,700 feet long at the crest, with a lake providing a total storage at upper operating lake level of 306,000 acre-feet. The project provides for flood control, irrigation, and recreation (for details, see page 2,000 of the 1962 Annual Report).

Construction of the existing project was initiated in November 1949 and completed in June 1961. Since 1961, \$472,628,000 (adjusted to October 2001 price index) in potential flood damages have been prevented by the project.

During a detailed study of outlet capacity and potential for adding hydropower to the existing project, a need for an auxiliary outlet became apparent. Construction of an auxiliary outlet was authorized in the Water Resource Development Act of 1976. In FY 78, an *Interim Feasibility Report on Modification of Lucky Peak Dam and Lake* (power facilities) was submitted to the Board of Engineers for Rivers and Harbors and approved. States, agencies, and the Chief of Engineers commented on the report to the Secretary of the Army. The report was forwarded to the Office of Management and Budget in February 1982.

A license to construct and operate power facilities at the project was issued by the Federal Energy Regulatory Commission (FERC) (Project #2832) to the Boise Project Board of Control on June 10, 1980, and modified on October 9, 1980, and in 1982. Construction of the auxiliary outlet facility began in May 1984 and was completed in August 1986. Construction of modifications to the existing outlet tunnel and powerhouse excavation began in August 1986 and was completed January 1987. Powerhouse general contract construction began in April 1986. The project was completed and dedicated on October 7, 1988. Power on-line for all units was August 18, 1988. A Federally-authorized second outlet was deauthorized in FY 90.

Recreation facilities at Lucky Peak Lake consist of 20 picnic/day-use areas, 4 boat launch ramps, and 3 swimming areas. The FY visitation to Lucky Peak Lake was 672,256.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Normal operation and maintenance,

which included the dam structures and recreation areas, continued. The FY costs were \$1,768,708.

5. MILL CREEK, BENNINGTON LAKE, WA

Location. This project is located in and upstream from Walla Walla, WA, on Mill Creek, a tributary of the Walla Walla River.

Existing project. The project includes an off-stream earthfill storage dam, about 125 feet above the streambed and 3,200 feet long at the crest, two concrete-lined outlet channels, an earthfill diversion dam, and diversion structures. The project provides for flood control and recreation. Authorizing legislation to provide a channel through the city of Walla Walla was added to the project in 1941. Recreation was added to the project purposes through the Federal Water Project Recreation Act of 1965.

Construction of the dam and appurtenant works was completed in 1942. Paving of the channel through the city of Walla Walla was completed in 1966 (for details, see page 2,005 of the 1962 Annual Report). Since 1942, \$46,655,000 (adjusted to October 2001 price index) in potential flood damages have been prevented by the combined storage and channel operation.

Rehabilitation of the existing project was initiated in FY 78 and completed in FY 79. The plan of rehabilitation included action to correct the seepage and internal erosion that has occurred during each subsequent filling of the reservoir. A cutoff wall was constructed but did not alleviate the seepage problem, thus requiring limited flood control use of the project. The seepage and internal erosion create a high vulnerability for dam failure.

Mill Creek/Bennington Lake offers visitors three day-use/picnic areas and one boat launch ramp. Visitation to Mill Creek/Bennington Lake for the FY was 156,869.

Local cooperation. Fully complied with (for details, see page 2,006 of the 1962 Annual Report).

Operations during FY. Operation and Maintenance: Normal operation and maintenance continued, which included regulation of water control structures and care of recreation areas. Initiated right abutment test grouting contract. The FY costs were \$1,435,619.

6. SCHEDULING FLOOD CONTROL RESERVOIR OPERATIONS

Functional regulation of non-Corps projects was accomplished under several authorities. Regulation was accomplished as authorized under Section 7, Flood Control Act of 1944, and coordinated with the Bureau of Reclamation for Palisades, Little Wood, and Anderson Ranch Reservoirs, ID; and Bully Creek, Warm Springs, Agency Valley, and Mason Reservoirs, OR.

Flood control operations at Jackson Lake, WY, Arrowrock Reservoir and Lake Lowell, ID, were in accordance with formal agreements with the Bureau of Reclamation. Flood control regulation was accomplished under informal agreements for the Owyhee Reservoir, OR; and American Falls, Magic, Mackay, Cascade, and Deadwood Reservoirs, ID. Brownlee and Oxbow Reservoirs, OR, and Hells Canyon Reservoir, OR and ID, provided flood control regulation in accordance with provisions of the Federal Power Commission license to Idaho Power Company. The FY costs were \$330,833.

Multipurpose Projects, Including Power

7. COLUMBIA RIVER JUVENILE FISH MITIGATION PROGRAM (WALLA WALLA PROJECTS), OR, WA, AND ID

Location. This project is located at Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams on the lower Snake River in the State of Washington and McNary Lock and Dam on the Columbia River in the states of Oregon and Washington.

Existing project. The eight Corps hydroelectric projects on the Columbia and lower Snake Rivers have been identified as a major contributing factor in causing mortality to downstream migrating juvenile salmon and steelhead. Without adequate bypass facilities to guide these juvenile fish away from the power turbines at the dams, mortalities incurred through project passage severely impact the commercial, recreational, and Indian fisheries. The Corps has recognized the need to reduce juvenile fish mortality and has undertaken bypass measures that include mechanized fish bypass systems with barge and truck transportation. Spill as an additional bypass route over the spillways has been used to divert fish from entering turbine units, but it is a significant adverse economic factor due to lost power revenues. Congress passed, and the

President signed, the FY 89 Energy and Water Development Appropriation Act (PL 100-371), which mandated the expenditure of funds for the design, testing, and construction of new or improved fish bypass facilities for the Columbia River fish mitigation projects. Completion of bypass and transportation facilities will significantly increase the survival of migrating downstream juvenile fish. The mitigation study will determine the overall scope of the fish mitigation facilities for these Columbia and lower Snake River dams. The mitigation study project was added to the President's FY 91 budget.

The plan of improvement includes the following facilities: (1) Ice Harbor Lock and Dam: screens, new gantry crane, collection bypass facility, intake gate raise, spillway deflectors, surface bypass, and fish ladder temperature control; (2) Lower Monumental Lock and Dam: hold/load and collection bypass facility, screens, passive integrated transponder tag (PIT-Tag) facility, barge load facility modifications, barges, gate raise modifications, gantry crane, fish ladder temperature control, and surface bypass; (3) Little Goose Lock and Dam: screens, gantry crane modification, collection bypass facility, outfall pipe, fish ladder temperature control, fallout fences, gate raise, deck screen modifications, PIT-Tag facility, and surface bypass; (4) Lower Granite Lock and Dam: juvenile fish facility, gantry crane, gate raise, outfall pipe, fish barges, screens, additional moorage facility, fish slot closures, juvenile fish facility improvements, barge exit modifications, deck screen modifications, fish ladder temperature control, surface bypass, PIT-Tag facility, and fallout fences; and (5) McNary Lock and Dam: gantry crane, screens, hold/load facility, gate raise modifications, tilted weirs fish ladder, maintenance facility, fish ladder exits, hold/load facility, adult/juvenile collection channel stoplogs, juvenile fish facility, surface bypass, and gantry crane modifications.

In response to the 1995 Biological Opinion issued by the National Marine Fisheries Service, the District is conducting a feasibility study (Lower Snake River Juvenile Salmon Migration Feasibility Study) to evaluate salmon migration problems on the lower Snake River. The objective of the study is to improve salmon migration conditions through the four Corps-operated dams and reservoirs on the lower Snake River. The study focuses on how these dams can be changed to improve survival and recovery prospects for Snake River salmon stocks under the Endangered Species Act. The total estimated cost of the study is \$29.0 million. Expenditures to date are \$28.5 million.

The District is currently managing a surface bypass and collection technology development effort that focuses on improving juvenile fish passage for endangered and threatened salmon migration past all Corps hydroelectric projects on the Columbia and lower Snake Rivers. It is an aggressive, nontraditional approach to prototype development that involves fast-track design, construction, testing, and evaluation.

The fully-funded Federal project cost is estimated at \$682,700,000 for Walla Walla projects.

Local cooperation. None required.

Operations during FY. The following improvements and studies were accomplished during the 2001 fiscal year (FY 01).

Ice Harbor Lock and Dam Emergency Auxiliary Water Supply contract was awarded to upgrade and isolate existing pump systems, modify diffusers to allow more flow, and install cranes for access and maintenance upgrade.

General model testing of flow deflectors and spill pattern evaluation at McNary, Lower Monumental, and Little Goose Locks and Dams was conducted.

The replacement of Extended Submerged Barge Screen (ESBS) perforated plates and connectors at McNary, Little Goose, and Lower Granite Locks and Dams was completed.

The prototype testing of the Adult PIT-Tag detectors at McNary Lock and Dam was conducted.

Replacement of the adult and juvenile collection channel stoplogs at McNary Lock and Dam was completed.

Spillway survival and adult fallback at Ice Harbor Lock and Dam was evaluated.

The Little Goose Lock and Dam trash boom post construction biological evaluation was conducted.

Technical analysis continued for Lower Snake River Juvenile Salmon Migration Feasibility Study.

Several mitigation studies continued throughout FY 01, including Turbine Model Study, Cylindrical

Dewatering prototype testing, and development and construction of the Removable Spillway Weir prototype. Many multi-year Anadromous Fish Evaluation Program studies were also conducted including Multiple Bypass and Delayed Mortality evaluations, Temperature Impacts on Adults, Evaluation of Temperature in Fish Ladders, and Estuary PIT-Tag recovery.

The FY costs were \$41,882,547. Total project costs are \$407,114,000.

8. DWORSHAK DAM AND RESERVOIR, ID

Location. The dam is on the North Fork of the Clearwater River, 1.9 miles above its junction with the Clearwater River, near Orofino, ID, and about 35 miles east of Lewiston, ID.

Existing project. The project includes a dam, powerplant, public parks, and appurtenant facilities. The project provides for flood control, navigation, hydroelectric power generation, recreation, and area redevelopment. The reservoir has a normal operating range between the elevations of 1,600 and 1,445 mean sea level (msl). The reservoir has a gross storage capacity of 3,468,000 acre-feet (2 million acre-feet of which are effective for both local and regional flood control and for at-site and downstream power generation). In addition, the reservoir, extending 59 miles into rugged and relatively inaccessible timberland, provided cost-effective transportation for moving marketable logs. The reservoir is habitat for elk, deer, and other wildlife. The dam structure is about 3,287 feet long and about 717 feet above the streambed. Fish passage is not feasible due to the height of the dam. A hatchery has been built below the dam to assure continuance of anadromous fish runs. The powerhouse has two 90,000 kilowatts (kW) and one 220,000 kW generating units in operation for a capacity of 400,000 kW. Provisions had been made for three additional 220,000 kW generating units for an ultimate installed capacity of 1,060,000 kW.

A reconnaissance report justifying the feasibility and cost benefits for the addition of a 200,000 kW fourth generating unit was completed in FY 78. However, environmental and economic studies on additional generating units have been curtailed due to public opposition. Unit 4 is undeveloped. Units 5 and 6 were deauthorized FY 90, and Unit 4 was deauthorized in FY 95. Principal project data are set forth in table 30-J.

Construction of the project began in July 1966. It was placed in operation in 1972 and was completed in 1986. Since the project became operational in June 1972, it has prevented about \$2,836,000 (adjusted to October 2001 price index) in potential flood damages. Power generation through September 2001 was 47.69 billion kW hours.

At Dworshak Reservoir, recreation facilities consist of 12 day-use/picnic areas, 6 camp areas, 6 boats launches, and 2 swim areas. Total visitation to Dworshak Reservoir for the FY was 137,485.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: Management of wildlife habitat browse continued on project lands to provide winter browse for elk and deer. Completed paving contract at recreation areas. During the FY, 1.15 billion kW hours of electrical power were generated by the three generating units. The FY costs were \$9,781,613.

9. ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA

Location. This dam is located on the Snake River, 9.7 miles above the river mouth at the head of Lake Wallula (McNary Reservoir) and 12 miles east of Pasco, WA.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, recreation areas, and appurtenant facilities. The project provides navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 440 and 435 msl. Lake Sacajawea extends upstream about 31.9 miles and provides slack water to Lower Monumental Lock and Dam. The dam structure is approximately 2,822 feet long and approximately 130 feet above the streambed. The fish passage facilities include two fish ladders. The powerhouse has three 90,000 kW units and three 111,000 kW generating units in operation for a capacity of 603,000 kW.

The spillway dam is 590 feet long, and the overflow crest at elevation 391 msl is surmounted by 10 tainter gates, 50 feet wide and 52.9 feet high, that provide the capacity to pass a design flood of 850,000 cubic feet per second (cfs). The deck is at elevation 453 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by

675 feet and a 16-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 41.6 miles long is provided from the mouth of the Snake River to the dam and from the dam to Lower Monumental Lock and Dam. Principal data are set forth in table 30-J.

Construction of the original project began in December 1955. It was placed in operation in 1961 and completed in 1971. Construction of the additional generating units was started in 1971 and completed in 1981. Power generation through September 2001 was 84.84 billion kW hours.

Recreation areas on Lake Sacajawea include 11 picnic/day-use sites, 4 camping areas, 7 areas with boat launching, and 4 swimming areas. Total visitation on Lake Sacajawea for the FY was 433,941.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.71 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 4,687,300 tons during calendar year 2000. The FY costs were \$10,017,804.

10. LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA

Location. The dam is 70.3 miles above the mouth of the Snake River and at the head of Lake Herbert G. West (Lower Monumental Reservoir), about 40 miles northerly of Walla Walla, WA, and 50 miles westerly of Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 638 and 633 msl. Lake Bryan extends upstream about 37.2 miles and provides slack water to Lower Granite Lock and Dam. The dam structure is 2,655 feet long and approximately 165 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores and a fish channel through the spillway, which connects to the powerhouse fish collection system and south shore ladder. The

powerhouse has six 135,000 kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 581 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 668 feet and a 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 37.2 miles long is provided from the dam to Lower Granite Lock and Dam. Relocations along the lake included 32 miles of Camas Prairie Railroad, 6.8 miles of county roads, 2.2 miles of state highways, and the Central Ferry Bridge. Principal project data are set forth in table 30-J.

Construction of the original project began in 1963. It was placed in operation in 1970 and completed in 1976. Construction of additional generating units started in 1974 and was completed in 1984. Power generation through September 2001 was 78.06 billion kW hours.

Lake Bryan provides seven day-use sites, five campgrounds, five boat launching areas, and two swimming areas. Total FY visitation was 245,974 for Lake Bryan.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.67 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 3,103,100 tons during calendar year 2000. The FY costs were \$6,724,597.

11. LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA

Location. This dam is at river mile 107.5 on the Snake River at the head of Lake Bryan (Little Goose Reservoir) and about 33 miles downstream from Lewiston, ID.

Existing project. The project includes a dam, powerplant, navigation lock, fish ladder, appurtenant facilities, and includes approximately 8 miles of slack water levees along the Snake and Clearwater Rivers at Lewiston, ID. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 738

and 733 msl in Lewiston, ID, and Clarkston, WA. The Lower Granite Lake extends upstream approximately 38 miles and provides slack water to the confluence of the Snake and Clearwater Rivers. The dam structure is approximately 3,200 feet long and approximately 146 feet above the streambed. Fish passage facilities include one ladder with entrances on both shores with a fish channel through the spillway that connects to the powerhouse fish collection system and south shore ladder. The powerhouse has six 135,000 kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 512 feet long, and the overflow crest at elevation 681 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, which provide the capacity to pass a design flood of 850,000 cfs. The navigation lock is single-lift type with clear plan dimensions of 86 by 674 feet and 15-foot minimum depth over the sills. A navigation channel 250 feet wide, 14 feet deep, and 39.3 miles long is provided from the dam to the confluence of the Snake and Clearwater Rivers. Principal data are set forth in table 30-J.

Construction of the original project started in July 1965. It was placed in operation in 1975 and completed in 1984. Construction of additional generating units was started in 1974 and completed in 1979. Power generation through September 2001 was 69.29 billion kW hours. Approximately \$16,746,000 (adjusted to October 2001 price index) in potential flood damages have been prevented since the levees became functional.

Lower Granite Lake offers visitors 16 day-use/picnic sites, 6 sites with camping, 12 boat launch ramps, and 4 swimming areas. Total recreation visitation to Lower Granite Lake for the FY was 1,229,162.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 1.72 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 2,265,000 tons during calendar year 2000. The FY costs were \$9,993,910.

Juvenile Fish Transportation Program. As the first collector dam on the Snake River, Lower Granite Lock and Dam is a primary component of the Juvenile Fish Transportation Program. Transport

began in the late 1960's as a research program on how to bypass juvenile salmon and steelhead around dams and reservoirs of the Corps' Snake and Columbia River dams. Transport became an operational program in 1981 with collection and transport from Lower Granite, Little Goose, and McNary Locks and Dams. Transport was expanded in 1993 to include Lower Monumental Lock and Dam. Development and improvement of collection and bypass systems continues with a new collection system completed at McNary Lock and Dam in 1994, a new bypass system completed at Ice Harbor Lock and Dam in 1996, and ESBS's installed at Lower Granite, Little Goose, and McNary Locks and Dams in 1996 and 1997.

The 2001 juvenile fish transport season was marked by near record drought level river flows after five good flow years. Very little water was spilled at the dams in 2001 for bypassing juvenile fish in order to maximize fish collection for transportation. Juvenile fish collection at Lower Granite Lock and Dam was 8,341,703 compared with 8,300,546 in 2000 and 5,879,114 in 1999. A total of 351,221 fish were bypassed back to the river in 2001 and 7,979,742 were transported. At Little Goose Lock and Dam, a total of 1,805,691 juvenile salmon and steelhead were collected in 2001 compared to 2,818,520 collected in 2000. A total of 8,836 fish were bypassed back to the river in 2001 compared to no fish in 2000. A total of 1,781,972 juvenile fish were transported from Little Goose Lock and Dam in 2001. At Lower Monumental Lock and Dam, 976,861 juvenile salmon and steelhead were collected compared to 1,587,203 in 2000. A total of 25,756 fish were bypassed from Lower Monumental Lock and Dam in 2001 compared to 47,171 in 2000. At McNary Lock and Dam, some of the fish collected during the spring were transported because of low river flow conditions. Normal operations at McNary Lock and Dam are to bypass fish in the spring until approximately mid-June when collection and transport of summer migrants begin. A total of 13,936,928 juvenile salmon and steelhead were collected in 2001 compared to 11,045,785 in 2000. Approximately 2,231,554 of the fish collected were bypassed back to the river to meet fishery agency requirements. A total of 11,612,156 juvenile fish were transported from McNary Lock and Dam in 2001. A grand total of 25,061,183 juvenile salmon and steelhead were collected at all projects in 2001 compared to 23,752,054 in 2000. A total of 22,331,068 fish were transported in 2001, 89 percent of those collected. Of the fish transported,

21,756,202 were transported by barge (92.4 percent) and 574,866 were trucked (2.6 percent).

12. LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA

Location. This dam is on the Snake River at the head of Lake Sacajawea (Ice Harbor Reservoir), about 45 miles northeast of Pasco, WA, and 41.6 miles above the river mouth.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, and appurtenant facilities. The project provides for navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 540 and 537 msl. Lake Herbert G. West extends upstream approximately 28.7 miles and provides slack water to Little Goose Lock and Dam. The dam structure is approximately 3,791 feet long and approximately 135 feet above the streambed. The fish passage facilities include two fish ladders, one at each end of the dam. The powerhouse has six 135,000 kW generating units in operation for a capacity of 810,000 kW. The spillway dam is 572 feet long, and the overflow crest at elevation 483 msl is surmounted by eight tainter gates, 50 feet wide and 60 feet high, that provide capacity to pass a design flood of 850,000 cfs. The deck is at elevation 553 msl and provides a service road and track for a gantry crane. The navigation lock is a single-lift type with clear plan dimensions of 86 by 666 feet and a 15-foot minimum depth of the sills. A navigation channel 250 feet wide, 14 feet deep, and 28.1 miles long is provided from the dam to Little Goose Lock and Dam. Relocations along the lake included railroads and highways. Principal data are set forth in table 30-J.

Construction of the original project started in June 1961. It was placed in operation in 1969 and completed in 1976. Construction of the additional generating units started in 1975 and was completed in 1981. Power generation through September 2001 was 92.40 billion kW hours.

Lake West offers seven day-use areas, five areas offering camping, five boat launch areas, and one designated swimming beach. Total visitation on Lake West for the FY was 155,266.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 3.54 billion kW hours of electrical power were generated by the six generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 4,109,500 tons during calendar year 2000. The FY costs were \$8,470,468.

13. LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID.

Location. This project is at various locations within the Columbia and Snake River drainages in the states of Idaho, Oregon, and Washington.

Existing project. The project consists of a series of fish hatcheries, wildlife development areas, and purchase of off-site project lands for fishing and hunting access. The project will compensate for loss of wildlife habitat and anadromous and resident fishery inundated as a result of construction of four multipurpose dams and reservoirs on the lower Snake River (Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams).

The real estate design memorandum and feature design memorandums on all hatcheries and satellites, the off-project wildlife lands, and the site selection report have all been approved. A final Environmental Impact Statement was filed with the Council on Environmental Quality on November 2, 1977. The Dworshak National Fish Hatchery Expansion, Irrigon, Hagerman, Lyons Ferry, Lookingglass, McCall, Sawtooth, Magic Valley, and Clearwater hatcheries (including their respective satellite facilities) are all in operation. Transfer actions have been completed except for Big Canyon and Captain John Rapids Acclimation Facilities. Transfer for these remaining facilities is scheduled to be complete by the end of FY 02. Fencing is complete at all wildlife development areas. Off-project land acquisition is 100-percent complete. Habitat development continues at many of these sites. A plan for woody riparian habitat development is being initiated to compensate for habitat losses resulting from the inundation of habitat. This will result in the creation of new riparian habitat areas. The compensation project is scheduled for completion in FY 07.

Estimated Federal cost for the project is \$261,000,000.

Local Cooperation. None required.

14. McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA

Location. This dam is on the Columbia River, 292 miles above the mouth, near Umatilla, OR, and 3 miles above the mouth of the Umatilla River.

Existing project. The project includes a dam, powerplant, navigation lock, two fish ladders, appurtenant facilities, and a system of levees and pumping plants. The project provides for slack water navigation, hydroelectric power generation, recreation, and incidental irrigation. The reservoir has a normal operating range between elevations 340 and 335 msl. Lake Wallula extends upstream approximately 64 miles and provides slack water to Ice Harbor Lock and Dam. The dam structure is 7,365 feet long and approximately 183 feet above the streambed. Fish passage facilities include two fish ladders. The powerhouse has fourteen 70,000 kW generating units in operation for a capacity of 980,000 kW. The spillway dam is 1,310 feet long, and the overflow crest is at elevation 291 msl and is surmounted by 22 vertical lift gates, 50 feet wide and 51 feet high, which provide the capacity to pass a design flood of 2.2 million cfs. The navigation lock is a single-lift type with clear plan dimensions of 86 by 683 feet and a 15-foot minimum depth over the sills. A navigation channel (250 feet wide, 14 feet deep, and 32 miles long) is provided from the dam to the mouth of the Snake River. Relocations along the lake included railroad bridges over the Columbia and Snake Rivers in order to eliminate hazards to navigation. Principal project data are set forth in table 30-J.

Construction began in May 1947. It was placed in operation in 1953 and was completed in 1982. Power generation through September 2001 was 296.51 billion kW hours.

Local cooperation. None required.

Operations during FY. Operation and Maintenance: During the FY, 6.70 billion kW hours of electrical power were generated by the 14 generating units. Traffic through the navigation lock consisted of grains, petroleum products, fertilizer, wood products, and miscellaneous cargo and amounted to 8,460,600 tons during calendar year 2000. The FY costs were \$14,680,047.

Recreation areas on Lake Wallula include 19 sites offering day-use or picnicking, 5 campgrounds, 14 boat launching ramps, and 9 swimming areas. The Pacific Salmon Visitor Information Center at McNary Lock and Dam, staffed by park rangers, provides a regional overview of Corps efforts in salmon recovery issues. Total visitation on Lake Wallula for the FY was 4,318,045.

15. SNAKE RIVER DOWNSTREAM FROM JOHNSON BAR LANDING, OR, WA, AND ID

Location. This project is on the Snake River, downstream from Johnson Bar Landing, river mile 230. The Snake River, which is the largest tributary of the Columbia River, rises in Yellowstone National Park in western Wyoming, flows generally in a westerly direction for approximately 1,000 miles, and empties into the Columbia River, near Pasco, WA, 324 miles from the Pacific Ocean.

Existing project. The River and Harbor Act of 1945 authorized construction of dams, as necessary, for power, incidental irrigation, and open channel improvements for purposes of providing slack water navigation and irrigation between the mouth of the Snake River and Lewiston, ID. That authorization modified previous authorizations only for the portion of improvement below Lewiston, ID. Acts of June 13, 1902, and August 30, 1935, as they pertain to open river improvement from Lewiston, ID, to Johnson Bar Landing, remain part of the existing project.

Improvements included in existing projects are Ice Harbor Lock and Dam, Lake Sacajawea; Little Goose Lock and Dam, Lake Bryan; Lower Granite Lock and Dam; Lower Monumental Lock and Dam, Lake Herbert G. West; and open-river improvement, Lewiston to Johnson Bar Landing. Each of the four locks and dams is described in an individual report, and cost and financial data for the entire project are shown on tables 30-A and K.

Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams are in full operation (see individual reports for details). For further details, see the following Annual Reports: page 2,246 for 1903; page 1,986 for 1906; page 1,991 for 1915; and page 1,981 for 1962.

Local cooperation. None required.

Terminal facilities. On the Snake River from the mouth to Johnson Bar Landing, there are

18 privately-owned barge terminals in use for shipping grain, petroleum products, fertilizers, wood products, cement, and other general cargo. There are also 5 marinas and 28 small-boat launching ramps, all open to the public. The facilities serve slack water navigation to river mile 140, the site of Lewiston, ID. That slack water reaches the Lewiston, ID, and Clarkston, WA, area since the lake behind Lower Granite Lock and Dam was filled in February 1975.

Operations during FY. See individual reports for Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams. On the Snake River from Lewiston, ID, to Johnson Bar Landing, reconnaissance and condition surveys were conducted and survey markers were maintained.

16. MISCELLANEOUS WORK UNDER SPECIAL AUTHORIZATION

Flood control activities pursuant to Section 205, PL 858, 80th Congress, as amended:

The FY costs were \$205,158 with six continuing flood control activities: (1) Section 205 coordination (\$15,317); (2) Negro Creek, Sprague, WA (\$10,263); (3) Lawyers Creek, Kamiah, ID (\$3,239); (4) Coppei Creek, WA (\$37,010); (5) Mill Creek, WA (\$87,184); (6) Weiser River, ID (\$43,532). One new flood control activity: Boise River Eckart road to Warm Springs (\$8,613).

Emergency flood control activities-repair, flood fighting, and rescue work (PL 99, 84th Congress, and antecedent legislation):

There were no Federal costs this FY.

Emergency bank protection (Section 14, Flood Control Act of 1946, PL 526, 79th Congress):

The FY costs were \$72,696 for continuation of four flood control studies: (1) Section 14 Coordination (\$17,726); (2) Big Wood River, Deer Creek, Bridge, ID (\$54,501). Two new flood control activities: (1) Henry's Fork, ID (\$145); and (2) North Fork Payette River, ID (\$324).

Snagging and clearing of navigable streams and tributaries in interest of flood control (Section 208, Flood Control Act of 1954, PL 780, 83rd Congress):

The FY costs were \$5,027 for Section 208 Coordination.

Project modification for the improvement of the environment (Section 1135(b), PL 99-662, as amended):

The FY costs were \$2,504,403 for continuation of three environmental restoration projects, and preliminary restoration plan and coordination funds including: (1) Preliminary Restoration Plan, General (\$26,370); (2) Coordination Account (\$23,089); (3) Walla Walla River, OR and WA (\$1,819,235); (4) Grande Ronde River, OR (\$51,882); and (5) Milton-Freewater, OR (\$77,827). Two new projects: (1) Pasco Shoreline Restoration, WA (\$509,000); and (2) City of Richland Ecosystem Restoration (\$6,000).

Project modification for Aquatic Ecosystem Restoration (Section 206, PL 104-303, as amended):

The FY costs were \$348,380 for continuation of two aquatic ecosystem restoration projects, coordination account, and preliminary restoration plan funds including: (1) Coordination Account (\$21,217); (2) Preliminary Restoration Plan (\$9,364); (3) Ladd Marsh, OR (\$92,079); and (4) Salmon River, ID (\$154,618). One new project is Portneuf River, Lava Hot Springs, ID (\$71,102).

General Investigations

17. SURVEYS

Boise River. A reconnaissance study was completed for the Lower Boise River and tributaries in FY 01. The study determined that there is Federal interest in alternatives for flood control and environmental restoration with the Lower Boise River Basin (\$42,965).

Goose Creek. A reconnaissance study was initiated in FY 01 to determine the feasibility of undertaking flood damage reduction, water conservation, ground water recharge, ecosystem restoration, and related activities along the Goose Creek watershed near Oakley, Idaho (\$36,984).

Payette and Snake Rivers. A reconnaissance study was initiated in FY 01 to determine the feasibility of undertaking a flood control project along the Payette and Snake Rivers in the vicinity of Payette, Idaho (\$49,078).

The Lake Wallula Navigation Channel Dredging Study considers the commercial navigation needs of the Port of Walla Walla (Port). This study addresses and determines the Federal interest under the authority of Section 509(a) of the 1996 Water Resources Development Act (WRDA96), amended by Section 507, Maintenance of Navigation Channels (WRDA99), and was directed by the Assistant Secretary of the Army for Civil Works [ASA (CW)]. The results will make a determination whether such maintenance is economically justified and environmentally acceptable and that the channel was constructed in accordance with applicable permits and appropriate engineering and design standards. The study was initiated in March 2001 and completion of the study is scheduled for December 2001 (\$52,340).

Little Wood River Gooding, ID. A reconnaissance study was initiated and completed for the Little Wood River in FY 00. The study determined that there is a Federal interest in restoring and replacing the Lava Rock Little Wood River Containment System. A feasibility study will be initiated in February 2002. Alternatives will be studied to provide flood protection to the city of Gooding, ID (\$6,166).

The FY costs for surveys were \$542,426, including special studies: Walla Walla River Watershed (\$29,347). Miscellaneous Activities [Special Investigations, FERC Licensing Activities, North American Waterfowl Management Plan, and Interagency Water Resource Development (\$134,564)]; Coordination with other Federal Agencies (\$18,803); and Planning Assistance to States (\$172,180).

18. COLLECTION AND STUDY OF BASIC DATA

During the FY, flood hazard data for a number of locations in the District were collected and analyzed. Flood information was provided to several Federal agencies; to the states of Idaho, Oregon, and Washington; to various cities and counties in those states; and to some private organizations.

Total cost of collection and study of basic data during the FY was \$182,046, which included: Flood Plain Management Services (\$24,913); Technical Services (\$61,833); Quick Responses (\$5,988); and Special Studies (\$89,312).

**19. PRECONSTRUCTION, ENGINEERING,
AND DESIGN.**

Upper Snake River Jackson Hole, WY. This feasibility study was authorized under WRDA 2000. The project recommended the Progressive NER plan at a cost of \$66,500,000, to construct 12 sites located along a 22 mile stretch of the upper Snake River, which includes continuing construction, monitoring, and adaptive management. The pre-construction, engineering, and design phase will produce construction plans and specifications at Site 9 to enhance and restore fish and wildlife habitat. The Site 9 project design will apply project restoration features including eco-fences, channel capacity excavation, spur dikes, rock grade control, and bed stabilization (\$98,636).

WALLA WALLA, WA, DISTRICT

TABLE 30-A COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98 (\$)	FY 99 (\$)	FY 00 (\$)	FY 01 (\$)	Total to Sep 30, 2001 (\$)
3.	Jackson Hole, WY	New Work					
		Approp.	-	-	-	-	2,525,070
		Cost	-	-	-	-	2,525,069
		Maint.					
		Approp.	671,761	827,918	1,140,507	1,871,951	9,535,637 ¹
		Cost	864,762	842,552	1,133,473	1,783,387	10,164,954 ¹
(Contributed funds)		Maint.					
		Contrib.	48,182	48,906	-	-	378,798
		Cost	48,182	48,906	-	-	412,909
4.	Lucky Peak Lake, ID	New Work					
		Approp.	-	-	-	-	19,652,081 ²
		Cost	-	-	-	-	19,648,981 ²
		Maint.					
		Approp.	943,300	1,039,123	1,419,675	1,451,180	26,342,529 ³
		Cost	907,880	1,076,698	1,099,314	1,768,708	26,329,546 ³
5.	Mill Creek, WA	New Work					
		Approp.	-	-	-	-	2,258,495 ⁴
		Cost	-	-	-	-	2,258,495 ⁴
		Maint.					
		Approp.	852,890	1,613,387	836,064	1,377,275	19,340,056
		Cost	1,281,659	1,546,048	866,919	1,435,619	19,334,568
		Rehab					
		Approp.	-	-	-	-	17,714,102
		Cost	-	-	-	-	17,714,102
7.	Columbia River Fish Mitigation Program, OR, WA, and ID	New Work					
		Approp.	37,281,000	34,851,000	25,696,999	41,040,000	409,109,000 ⁹
		Cost	39,581,675	28,949,699	30,656,582	41,882,547	407,114,000 ⁹
8.	Dworshak Dam and Reservoir, ID	New Work					
		Approp.	-	-	-	-	327,482,196 ⁵
		Cost	-	-	-	-	327,482,197 ⁵
		Maint.					
9.	Ice Harbor Lock and Dam, WA	Approp.	8,036,175	9,652,318	9,524,659	9,769,017	169,923,699 ⁶
		Cost	11,076,208	9,752,198	9,535,939	9,781,613	169,815,337 ⁶
		New Work					
		Approp.	-	-	-	-	210,249,757 ⁷
		Cost	-	-	-	-	209,284,757 ⁷
		Maint.					
10.	Little Goose Lock and Dam, WA	Approp.	7,045,100	9,419,807	9,077,285	10,201,830	171,689,027 ⁸
		Cost	7,064,312	9,452,036	9,123,794	10,017,804	171,449,694 ⁸
		New Work					
		Approp.	-	-	-	-	262,632,022 ⁹
11.	Lower Granite Lock and Dam, WA	Cost	-	-	-	-	262,557,022 ⁹
		Maint.					
		Approp.	4,232,800	6,230,953	6,307,453	6,737,274	118,361,838 ¹⁰
		Cost	4,190,318	6,199,714	6,476,682	6,724,597	118,296,607 ¹⁰
		New Work					
		Approp.	-	-	-	-	400,080,315 ¹¹
12.	Lower Monumental Lock and Dam, WA	Cost	-	-	-	-	400,067,315 ¹¹
		Maint.					
		Approp.	9,365,300	10,052,838	9,416,297	9,740,100	166,707,403 ¹²
		Cost	9,219,308	10,294,807	9,121,087	9,993,910	166,551,030 ¹²
		Maint.					
		Contrib.	-	-	-	-	20,000
		Cost	-	-	-	-	20,000
		New Work					
		Approp.	-	-	-	-	238,612,732 ¹³
		Cost	-	-	-	-	237,222,733 ¹³
		Maint.					
		Approp.	5,048,600	6,250,690	7,831,705	15,627,677	130,745,581 ¹⁴
		Cost	5,039,295	6,157,881	7,775,230	8,470,468	123,360,829 ¹⁴

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

TABLE 30-A (Continued) COST AND FINANCIAL STATEMENT

See Section In Text	Project	Funding	FY 98 (\$)	FY 99 (\$)	FY 00 (\$)	FY 01 (\$)	Total to Sep 30, 2001 (\$)
13.	Lower Snake Fish and Wildlife Compensation, ID, OR, and WA	New Work Approp. Cost	2,907,000 2,653,234	1,304,000 1,620,153	1,230,032 1,061,330	888,000 1,054,271	230,662,000 230,643,000
	(Contributed Funds)	New Work Contrib. Cost	- -	- -	- -		223,965 223,965
14.	McNary Lock and Dam, Lake Wallula, OR, and WA	New Work Approp. Cost	- -	- -	- -		375,214,469 ¹⁵ 374,783,455 ¹⁵
		Maint. Approp Cost	12,627,724 11,696,358	14,193,157 14,908,297	15,675,724 16,002,925	15,111,061 14,680,047	301,236,570 ¹⁶ 300,668,662 ¹⁶
	(Contributed Funds)	Maint. Contrib. Cost	- -	- -	- -		43,707 43,707

¹ From the county, \$39,000 of the cost-sharing funds were received in FY 90, but were not expended until FY 91.

² Includes \$570,831 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.

³ Includes \$66,700 allotted and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

⁴ Excludes \$80,000 contributed funds, but includes \$96,340 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.

⁵ Includes \$2,046,100 regular project construction funds appropriated for and expended by Department of Interior in FYs 69 through 72 for hatchery operations. Includes \$655,000 appropriated and expended for additional unit.

⁶ Includes \$20,137,847 regular project operation and maintenance funds expended by Department of Interior starting FY 72 for hatchery operations. The FY's 72 through 78, funds of \$6,097,000 were charged to project as a cost, but not as an expenditure for accounting purposes. Includes \$48,182 appropriated and expended under Special Recreation Use Fees. After FY 92, special recreation use fees included with O&M. Includes \$1,310,750 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters.

⁷ Excludes \$82,500 contributed for artificial spawning channel. Includes \$36,748,021 appropriated and expended for additional Units 4 through 6. Includes \$914,256 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.

⁸ Includes \$48,919 appropriated and expended under Special Recreation Use Fees. After FY 92, special recreation fees included with O&M. Includes \$641,063 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$178,000 appropriated and expended - Bonneville Power Administration funds.

⁹ Includes \$60,941,807 appropriated and expended for additional Units 4 through 6.

¹⁰ Includes \$621,063 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$31,000 appropriated and expended - Bonneville Power Administration funds.

¹¹ Includes \$46,212,534 appropriated and expended for additional Units 4 through 6. Excludes \$405,819 contributed funds on lock and dam project. Includes \$63,800 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.

¹² Includes \$338,163 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$32,000 appropriated and expended - Bonneville Power Administration funds.

¹³ Includes \$51,661,371 appropriated and expended for additional Units 4 through 6.

¹⁴ Includes \$372,376 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. Excludes \$36,000 appropriated and expended - Bonneville Power Administration funds.

¹⁵ Includes \$1,976,586 appropriated and expended for Code 710, Recreation Facilities at Completed Projects.

¹⁶ Includes \$28,851 appropriated and expended under special recreation use fees and \$1,035,860 appropriated and expended under Maintenance and Operation of Dams and Other Improvements of Navigable Waters. After FY 92, Special Recreation Use Fees included with O&M. Excludes \$505,500 appropriated and \$301,258 expended - Bonneville Power Administration funds.

WALLA WALLA, WA, DISTRICT

TABLE 30-B

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
1.	May 17, 1950	<p>COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION PROJECTS</p> <p>Blackfoot Area, Snake River, ID. Levee left bank. Blackfoot River, ID. Levees, channel improvement, and rectification works.</p> <p>Boise Valley, Boise River, ID. Channel improvement and enlargement, levees, and revetments in Ada County. Canyon County unit was deauthorized April 18, 1967. Ada County Unit was deauthorized in 1986.</p> <p>Camas Creek, ID. Channel deepening and rectification of a 20-mile reach of Camas Creek. Deauthorized in 1965.</p> <p>Gooding Area, Little Wood River, ID. Channel improvement.</p> <p>Grande Ronde Valley, OR. Levees and channel clearing, straightening, and realignment; would complement stream regulation by upstream storage projects. Deauthorized in 1986.</p> <p>Heise-Roberts Extension, Snake River, ID. Channel clearing and rectification, levees, and bank protection. Henrys Fork Unit deauthorized in 1986.</p> <p>Jackson Hole, Snake River, WY. Flood protection.</p> <p>Kendrick, Potlatch River, ID. Revetted levee.</p> <p>Little Wood River, ID. Flood protection in immediate area. Deauthorized in 1965.</p> <p>Malheur River, OR. Channel rectification, levees, and bank protection at Vale. Willow Creek unit was deauthorized on October 14, 1969.</p> <p>Mud Lake, ID, Idaho Falls Area. Flood protection. Deauthorized in 1990.</p> <p>Palouse River, WA. Flood protection for urban and rural areas at Garfield and near Malden. Deauthorized in 1986.</p> <p>Payette Valley, ID. Channel rectification, levees, and bank protection along 38 miles of Payette River below Black Canyon Dam. Payette Valley was deauthorized on October 3, 1978.</p> <p>Portneuf River and Marsh Creek, ID. Concrete-lined channel through Pocatello. Inkorn-Marsh Creek unit was deauthorized on October 14, 1969.</p> <p>Shelley Area, Snake River, ID. Bank protection.</p> <p>South Fork Clearwater River, ID. Emergency construction of levees and revetments. Deauthorized in 1986.</p> <p>Teton River, ID. Flood protection. Deauthorized in 1986.</p> <p>Tomanovich-Salmon City, Salmon, ID. Channel improvement.</p> <p>Weiser River, Weiser Area, ID. Intermittent channel realignment and improvement, levees, and bank protection, lower river area. Project deauthorized in 1990.</p> <p>Whitebird Creek, ID. Flood protection. Deauthorized in 1986.</p>	H. Doc 531, 81st Congress, 2nd Session
Table 30-G	Oct 27, 1995	<p>CATHERINE CREEK LAKE, OR</p> <p>Flood control and multipurpose dam on Catherine Creek near Union, OR. Project deauthorized in 1990.</p>	H. Doc. 280, 89th Cong., 1st Session. Oct 27, 1965
Table 30-E	Sep 24, 1954	<p>CATHERINE CREEK, OR</p> <p>Organic debris removal along Catherine Creek.</p>	Sec 208, PL 83-780, Authorized by Chief Engineers. Sep 3, 1985

TABLE 30-B (Continued)

AUTHORIZING LEGISLATION

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
Table 30-E	Jul 24, 1946	CLEAR AND BURNT RIVER, OR Construction of riprap bank protection at city of Huntington Waste Water Lagoon.	Sec 14, PL 79-526, Authorized by Chief of Engineers. Jul 10, 1985
Table 30-E	Dec 22, 1944	COLFAX, PALOUSE RIVER, WA Provides for flood control works in vicinity of and through Colfax, WA, by channel enlargement and modification, levees, floodwalls, revetments, and modification of railroad bridges.	Flood Control Act of 1944 H. Doc. 888, 77th Cong., 2nd Session
4.	Jul 24, 1946	LUCKY PEAK LAKE, ID Dam for flood control, irrigation, and recreation.	PL 79-526, Chief of Engineers Report, dated May 13, 1946.
	Oct 22, 1976 Dec 22, 1944 as amended	Second outlet for streamflow maintenance. Deauthorized in 1990. Construction, operation, and maintenance of recreation facilities.	PL 94-587 Sec. 4, Flood Control Act of 1944
5.	Jul 28, 1938 as amended Aug 18, 1941	MILL CREEK, WALLA WALLA, WA Off-stream storage project upstream from Walla Walla.	H. Doc. 578, 75th Cong., 3rd Session
	Oct 31, 1992	Channel improvement through Walla Walla; concrete-lined Channel. Redesignation of reservoir to the Virgil B. Bennington Lake.	H. Doc. 719, 76th Cong. Sec 377, PL 77-228, Cong. 3rd Session Sec. 118 PL 102-580 102nd Cong.
Table 30-E	Sep 24, 1954 as amended	OWYHEE RIVER, OR Gravel, brush, and small tree removal from 12 miles of Owyhee River.	Sec. 208, PL 83-780 Authorized by Chief of Engineers. Feb 11, 1985
Table 30-E	Oct 27, 1965	ZINTEL CANYON DAM, WA Local protection reservoir to provide flood protection to portions of the city of Kennewick, WA.	PL 89-298, Sec. 201
7.	Jul 19, 1988	COLUMBIA RIVER FISH MITIGATION PROGRAM Design, test, and construct fish bypass facilities at Lower Monumental, Ice Harbor, Little Goose, Lower Granite, and McNary Locks and Dams.	PL 100-371
8.	Jul 3, 1958	(BRUCES EDDY) DWORSHAK DAM AND RESERVOIR, ID Preparation of detailed plans.	S. Doc. 51, 84th Cong., 1st Session
TABLE 30-B (Continued) AUTHORIZING LEGISLATION			
See Section In	Date Authorizing	Project and Work Authorized	Documents

WALLA WALLA, WA, DISTRICT

Text	Act		
	Aug 15, 1963	Redesignation of project as Dworshak Dam and Reservoir.	PL 88-96
	Oct 23, 1962	Dworshak Dam added Units 4, 5, and 6, Idaho. Units 5 and 6 were deauthorized in FY 1990. Unit 4 was deauthorized in FY 95.	PL 87-874
9.		ICE HARBOR LOCK AND DAM, LAKE SACAJAWEA, WA	
	Mar 2, 1945	Unit 1 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
10.		LITTLE GOOSE LOCK AND DAM, LAKE BRYAN, WA	
	Mar 2, 1945	Unit 3 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 31, 1970	Designation of reservoir as Lake Bryan.	PL 91-638
11.		LOWER GRANITE LOCK AND DAM, LOWER GRANITE LAKE, WA	
	Mar 2, 1945	Unit 4 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
12.		LOWER MONUMENTAL LOCK AND DAM, LAKE HERBERT G. WEST, WA	
	Mar 2, 1945	Unit 2 of 4, Lower Snake River Project. Lock and dam for navigation, power, recreation, and incidental irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	May 25, 1978	Designation of reservoir as Lake Herbert G. West.	PL 95-285
13.		LOWER SNAKE RIVER FISH AND WILDLIFE COMPENSATION PLAN, WA, OR, AND ID	
	Oct 22, 1976 as amended	Fish hatcheries and replacement of wildlife habitat.	PL 94-587
	Nov 17, 1986	Changes to land acquisition authority.	H.R. 6 PL 99-662
14.		McNARY LOCK AND DAM, LAKE WALLULA, OR AND WA	
	Mar 2, 1945	Lock and dam for navigation, power, recreation, and irrigation.	H. Doc. 704, 75th Cong., 3rd Session
	Dec 22, 1944 as amended	Construction, operation, and maintenance of recreation facilities.	Sec. 4, Flood Control Act of 1944
	Nov 17, 1986	Construction, operation, and maintenance of a second powerhouse.	H.R. 6, PL 99-662
		McNary Lock and Dam Second Powerhouse automatically deauthorized on Nov 16, 1991.	Sec. 1001, PL 99-362
Table F		LEWISTON-CLARKSTON BRIDGE, ID AND WA	
	Oct 22, 1976	Four-lane highway bridge and approaches.	PL 94-587
	Dec 29, 1981	Increase of authorized amount to \$23,200,000.	PL 97-140
	Jul 30, 1983	Approach roadway from bridge to Sixteenth Avenue in Clarkston, WA. Increase of authorized amount to \$24,000,000.	PL 98-63

TABLE 30-B (Continued)

AUTHORIZING LEGISLATION

See Section In Text	Date Authorizing Act	Project and Work Authorized	Documents
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REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

15.	Jun 13, 1902	SNAKE RIVER TO JOHNSON BAR, OR, WA, AND ID Open-river navigation Riparia to Pittsburg Landing.	H. Doc. 127, 56th Cong, 2nd Session
	Jun 25, 1910	Mouth to Riparia.	H. Doc. 411, 55th Cong, 2nd Session
	Aug 30, 1935	Pittsburg Landing to Johnson Bar.	Rivers and Harbors Committee, Doc. 25, 72nd Cong, 1st Session
	Mar 2, 1945	Supersedes previous legislation mouth to Lewiston, ID, only. See Ice Harbor, Lower Monumental, Little Goose, and Lower Granite Locks and Dams.	H. Doc. 704, 75th Cong., 2nd Session
OTHER AUTHORIZED FLOOD CONTROL PROJECTS			
Table E	Aug 18, 1941	Dayton, Touchet River, WA. Flood protection.	H. Doc. 662, 76th Cong., 3rd Session
		Milton-Freewater, Walla Walla River, OR. Flood protection.	H. Doc. 719, 76th Cong., 3rd Session
	Nov 17, 1986	Malheur Lake, OR. Flood damage.	PL 99-662
Table E	Dec 22, 1944	Heise-Roberts Area, Snake River, ID. Channel improvement.	H. Doc. 452, 77th Cong., 1st Session
		Malheur Improvement District, Snake River, OR. Flood protection.	
Table E	Jul 11, 1956	Esquatzel Coulee, Connell, WA. Levees and protective work. Lower Dry Creek, Lowden, WA. Channel improvement. Mission and Lapwai Creeks, ID. Construction of levee.	PL 87-685
Table E	Oct 23, 1962	Bear Creek, Kendrick, ID. Channel improvement. Lapwai Creek Culdesac, ID. Construct left bank levee Lyman Creek near Rexburg, ID. Channelization Tucannon River, Camp Wooten, WA. Levee and channel work.	PL 87-874
3. and Table E	Oct 23, 1962	Ririe Lake, Willow Creek, ID. Storage for flood control.	PL 87-874
	May 17, 1950	Jackson Hole, WY. Flood control protection by channel improvement consisting of channel rectification, levees, and revetment along Snake River in vicinity of Wilson, WY.	PL 81-188
	Nov 17, 1986	Also operation, maintenance, modifications, and additions are Federal responsibility.	PL 99-662
	Nov 17, 1986	Little Wood River, ID. Flood protection.	PL 99-662
Table G	Oct 23, 1962	Blackfoot Reservoir, Blackfoot River, ID. Modification to increase spillway capacity. Authorized in Oct 1962 and deauthorized in 1986.	PL 87-874
	Nov 17, 1986	Grande Ronde Lake, OR. Flood control, irrigation, and water. Supply, anadromous fish, downstream, and resident trout fishery, recreation, and downstream power.	PL 99-662
	Oct 27, 1965	Deauthorized in 1986.	PL 89-298
Table G	Nov 17, 1986	Cottonwood Creek Dam, ID. Protection to highly-developed urban and suburban areas against flash floods. Authorized Oct 1962, PL 89-298. Deauthorized in 1986.	PL 89-298
Table G	Dec 22, 1944	Pullman, Palouse River, WA. Flood protection. Authorized Dec 1944. Deauthorized in 1986.	PL 89-298
Table G	Nov 7, 1966	Stuart Gulch Dam, ID. Protection to highly-developed urban and suburban areas against flash floods. Authorized Nov 7, 1966. Deauthorized in 1979.	H.D. 452, 77th Cong., 1st Session PL 89-789, Section 201

TABLE 30-C **OTHER AUTHORIZED
NAVIGATION PROJECTS**

Project	Status	For Last Full Report See Annual Report For:	Construction	Cost to Sep 30, 2000 Operation and Maintenance
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WALLA WALLA, WA, DISTRICT

Columbia River and Tributaries above Celilo Falls to Kennewick, WA	Completed	1968	\$1,851,195	-
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1. Obviated by The Dalles, John Day, and
McNary Projects.

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

**TABLE 30-E OTHER AUTHORIZED
FLOOD CONTROL PROJECTS**

Project	Status	For Last Full Report See Annual Report For:	Construction (\$)	Cost to Sep 30, 2000 Operation and Maintenance (\$)
Asotin Creek, Asotin, ID ¹	Completed	1951	12,019	-
Bear Creek, Kendrick, ID ¹	Completed	1970	133,518	-
Big Wood River, ID ⁵	Completed	1985	784,930	-
Boise River, ID ⁵	Completed	1985	236,500	-
Catherine Creek, OR	Completed	1990	28,800	-
Clear and Burnt River, OR	Completed	1990	99,500	-
Colfax, Palouse River, WA	Completed	1990	5,810,240	-
Connell, WA ¹	Completed	1967	60,000	-
Cottonwood Creek Community Church, Culdesak, ID ²	Completed	1984	23,400	-
Dayton, Touchet River, WA	Completed	1966	380,617	-
Dry Creek, WA ¹	Completed	1961	384,426	-
Esquatzel Coulee, Connell, WA ¹	Completed	1967	293,092	-
Esquatzel Coulee, Mesa, WA ¹	Completed	1969	38,631	-
Gooding Area, ID ¹	Completed	1954	86,126	-
Graves Creek, ID ¹	Completed	1953	75,469	-
Heise-Roberts Area, Snake River, ID	Completed	1955	1,586,439	-
Jackson Hole, Snake River, WY	Completed	1978	2,504,245	-
Lapwai Creek, Culdesak, ID ¹	Completed	1972	176,833	-
Lava Hot Springs, Portneuf River, ID ¹	Completed	1973	113,296	-
Little Wood River, ID ⁶	Active	1993	353,534	-
Lower Dry Creek, Lowden, WA ¹	Completed	1972	17,600	-
Lyman Creek, ID ¹	Completed	1971	230,315	-
Malheur Lake Project, OR ⁷	Completed	1990	4,729,348	-
Malheur Improvement District, Snake River, OR	Completed	1957	138,608	-
Milton-Freewater, Walla Walla River, OR ³	Completed	1968	2,327,578	-
Mission and Lapwai Creeks, ID ¹	Completed	1965	54,538	-
Orofino Creek and Clearwater River, Orofino, ID ²	Inactive	1949	23,050	-
Owyhee River, OR	Completed	1990	69,316	-
Rapid Creek, ID ⁵	Completed	1985	19,500	-
Pataha Creek, Pomeroy, WA ²	Completed	1977	110,815	-
Pataha Creek at Pomeroy, WA ²	Completed	1993	308,511	-
Payette River, Emmett Sewage Lagoon, ID ²	Completed	1967	39,172	-
Riverside Area, Pasco, WA ¹	Completed	1972	28,839	-
Ririe Lake, ID	Completed	1983	39,677,448	-
Sewage Lagoon, Vale, OR ²	Completed	1985	75,000	-
Shobe Canyon, Heppner, OR ¹	Completed	1970	5,000	-
Snake River, Blackfoot, ID ¹	Completed	1980	131,700	-
Snake River, Heise Bridge Location, ID ²	Completed	1952	8,501	-
Snake River, Stevens, Blackfoot, ID ¹	Completed	1968	32,425	-
South Fork, Boise River, ID ⁵	Completed	1985	44,400	-
South Fork Clearwater River, Kooskia-Sites, ID	Completed	1973	61,055	-
Tomanovich-Salmon City, ID ¹	Completed	1955	128,635	-
Touchet River, Waitsburg, WA ¹	Completed	1973	72,140	-
Tucannon River, Wooten, WA ¹	Completed	1971	74,305	-
Umatilla River, OR ¹	Completed	1961	161,540	-
Wallowa River, Weaver Bridge, OR ²	Completed	1960	16,118	-
Weiser River, ID ⁵	Completed	1985	293,739	-

WALLA WALLA, WA, DISTRICT

**TABLE 30-E (Continued) OTHER AUTHORIZED
FLOOD CONTROL PROJECTS**

Project	Status	For Last Full Report See Annual Report For:	Construction (S)	Cost to Sep 30, 2000 Operation and Maintenance (\$)
Willow Creek, ID ¹	Completed	1963	976	-
Willow Creek Lake, OR	Completed	1985	37,231,332	-
Yakima River, West Richland, WA ^{1,4}	Completed	1964	229,890	-
Zintel Canyon Dam, WA ⁸	Completed	1995	6,801,788	-

¹ Authorized by Chief of Engineers pursuant to Section 205, PL 80-858.

² Authorized by Chief of Engineers pursuant to Section 14, PL 79-526.

³ Exclusive of \$6,300 contributed funds.

⁴ Exclusive of \$9,000 contributed funds.

⁵ Authorized by Chief of Engineers pursuant to Section 208, PL 83-780.

⁶ Authorized by Chief of Engineers pursuant to PL 99-662. No funds authorized until Fiscal Year 1990.

⁷ Exclusive of \$853,712 contributed funds.

⁸ Authorized by Chief of Engineers pursuant to PL 89-298. Construction began in 1992.

**TABLE 30-F OTHER AUTHORIZED
MULTIPURPOSE PROJECTS, INCLUDING POWER**

Project	For Last Full Report See Annual Report For:	Construction (S)	Cost to Sep 30, 2000 Operation and Maintenance (\$)
Lewiston-Clarkston Bridge, ID and WA	1990	23,409,832	-

TABLE 30-G DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For:	Date Deauthorized	Federal Funds Expended (\$)	Contributed Funds Expended (\$)
Asotin Dam, Snake River, ID and WA	1964	1975	-	-
Blackfoot Reservoir, ID	1980	1986	267,626	-
Boise Valley, ID				
Ada County Unit	1963	1986	46,084	-
Canyon County Unit	1963	1967	10,600	-
Camas Creek, ID	1960	1965	9,080	-
Catherine Creek Lake, OR	1978	1990	1,552,000	-
Cottonwood Creek Dam, Boise, ID	1972	1986	195,686	-
Dworshak Unit 4	1993	1995	655,000	-
Dworshak Units 5 and 6, ID	1990	1990	-	-
Grande Ronde Lake, OR	1966	1986	-	-
Grande Ronde Valley, OR	1958	1986	169,195	-
Heise-Roberts Extension, ID				
Henrys Fork Unit	1968	1986	-	-
Little Wood River, ID	1960	1965	21,334	-
Lower Walla Walla River, WA	1953	1986	4,000	-
Lucky Peak 2nd Outlet, ID	1988	1990	-	-
Malheur River, OR				
Willow Creek Unit	1961	1969	13,000	-
McNary Second Powerhouse, OR and WA	1991	1991	5,671,000	-
Mill Creek, WA	1958	1977	3,537	-

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

TABLE 30-G (Continued)

DEAUTHORIZED PROJECTS

Project	For Last Full Report See Annual Report For:	Date Deauthorized	Federal Funds Expended (\$)	Contributed Funds Expended (\$)
Mud Lake Area, ID	1957	1990	5,994	-
Palouse River, WA	1958	1986	2,000	-
Payette Valley, ID	1960	1978	23,178	-
Portneuf River, Inkom-Marsh Creek, ID	1969	1969	-	-
Pullman, Palouse River, WA	1964	1986	289,109	-
S. Fork Clearwater River, ID	1973	1986	3,899	-
Stuart Gulch Dam, Boise, ID	1974	1979	234,100	-
Teton River, ID	1955	1986	10,387	-
Touchet River, WA	1957	1977	11,198	-
Weiser River, Weiser Area, ID	1960	1990	112,757	-
Whitebird Creek, ID	1957	1986	1,896	-

**COLUMBIA RIVER BASIN, LOCAL FLOOD PROTECTION
PROJECTS (SEE SECTION 1 OF TEXT)**

TABLE 30-H

Project	Status	Estimated Federal Cost (\$)	Cost to Sep 30, 2000 (\$)
Blackfoot Area, Snake River, ID	Completed	-	209,403
Blackfoot River, ID	Completed	-	391,143
Heise-Roberts Extension, ID, Snake River Unit	Completed	-	3,402,958
Kendrick, Potlatch River, ID	Completed	-	85,873
Malheur River, OR, Vale Unit	Completed	-	333,581
Mud Lake, ID	Inactive	1,187,000	5,996
Portneuf River and Marsh Creek, ID, Pocatello Unit	Completed	-	6,456,032 ¹
Shelley Area, Snake River, ID	Completed	-	32,348
TOTAL			10,917,334

¹ Exclusive of \$36,800 contributed funds.

**INSPECTION OF COMPLETED FLOOD CONTROL
PROJECTS (SEE SECTION 2 OF TEXT)**

TABLE 30-I

Project	Inspection Complete
Clearwater River, ID	August 2000
Columbia River, WA	September 2000
Lyman Creek, ID	August 2000
Palouse River, WA	September 2000
Portneuf River, ID	July 2000
Potlatch River, ID	June 2000
Salmon River, ID	August 2000
Snake River, ID	July 2000
Touchet River, WA	September 2000
Tucannon River, WA	September 2000
Walla Walla River, OR	September 2000
Walla Walla River, WA	November 2000

WALLA WALLA, WA, DISTRICT

TABLE 30-J

**PRINCIPAL DATA CONCERNING NAVIGATION LOCK,
SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project		
Dworshak Dam and Reservoir, ID (see Section 8 of text)	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	September 1974
	Maximum Capacity	150,500 cfs ¹
	Crest Elevation	1,545 ft ²
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 56.4 ft
	Number	2
	POWERPLANT	
	Length	428 ft
	Generating Units:	
	Number Installed	3
	Rating, Each	2 @ 90,000 kW ³
		1 @ 220,000 kW
	Total Capacity Installed	400,000 kW
	Space for Additional	3
	Rating, Each	3 @ 220,000 kW
	Total Potential Capacity	1,060,000 kW
	Maximum Structural Height	717 ft
	First Power-On-Line	March 1973
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	1,600 to 1,445 ft
	Maximum	1,605 ft
	Flood Control Storage	2,000,000 ac-ft
	Lake Length	53.6 mi ⁴
	Lake Water Surface Area at Elevation 1,600	17,090 ac ⁵
	Length of Shoreline	175 mi
Ice Harbor Lock and Dam, WA (see Section 9 of Text)	NAVIGATION LOCK	
	Clear Width	86 ft
	Clear Length	675 ft
	Lift:	
	Minimum	97 ft
	Average	100 ft
	Maximum	105 ft
	Minimum Water Depth Over Sills	16 ft
	Open to Navigation	May 1962
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	January 1962
	Maximum Capacity	850,000 cfs
	Crest Elevation	391 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 52.9 ft
	Number	10

PRINCIPLE DATA CONCERNING NAVIGATION LOCK,

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

TABLE 30-J (Continued) SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT

Project	
Little Goose Lock and Dam, WA (see Section 10 of text)	POWERPLANT
	Length 671 ft
	Generating Units:
	Number Installed 6
	Rating, Each 3 @ 90,000 kW
	3 @ 111,000 kW
	Total Capacity Installed 603,000 kW
	Maximum Structural Height 226 ft
	First Power-On-Line December 1961
	IMPOUNDMENT
	Elevations:
	Normal Operating Range 440 to 437 ft
	Maximum 446 ft
	Lake Length 31.9 mi
	Lake Water Surface Area at Elevation 440 8,375 ac
	Navigation Channel, Depth by Width 14 by 250 ft
	Length of Shoreline 80 mi
	NAVIGATION LOCK
	Clear Width 86 ft
	Clear Length 668 ft
	Lift:
	Minimum 93 ft
	Average 98 ft
	Maximum 101 ft
	Minimum Water Depth Over Sills 15 ft
	Opened to Navigation May 1970
	SPILLWAY DAM
	Type of Construction Concrete Gravity
	Completed January 1970
	Maximum Capacity 850,000 cfs
	Crest Elevation 581 ft
	Control Gates:
	Type Tainter
	Size, Width by Height 50 by 60 ft
	Number 8
	POWERPLANT
	Length 656 ft
	Width 243 ft
	Generating Units:
	Number Installed 6
	Rating, Each 135,000 kW
	Total Capacity Installed 810,000 kW
	Maximum Structural Height 226 ft
	First Power-On-Line March 1970

WALLA WALLA, WA, DISTRICT

**TABLE 30-J (Continued) PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project	
Lower Granite Lock and Dam, WA (see Section 11 of text)	IMPOUNDMENT
	Elevations:
	Normal Operating Range 638 to 633 ft
	Maximum 646.5 ft
	Lake Length 37.2 mi
	Lake Water Surface Area at Elevation 738 10,025 ac
	Navigation Channel, Depth by Width 14 by 250 ft
	Length of Shoreline 92 mi
	NAVIGATION LOCK
	Clear Width 86 ft
	Clear Length 674 ft
	Lift:
	Minimum 95 ft
	Average 100 ft
	Maximum 105 ft
	Minimum Water Depth Over Sills 15 ft
	Opened to Navigation May 1975
	SPILLWAY DAM
	Type of Construction Concrete Gravity
	Completed February 1975
	Maximum Capacity 850,000 cfs
	Crest Elevation 681 ft
	Control Gates:
	Type Tainter
	Size, Width by Height 50 by 60 ft
	Number 8
	POWERPLANT
	Length 656 ft
	Width 243 ft
	Generating Units:
	Number Installed 6
	Rating, Each 135,000 kW
	Total Capacity Installed 810,000 kW
	Maximum Structural Height 228 ft
	First Power-On-Line April 1975
	IMPOUNDMENT
	Elevations:
	Normal Operation Range 738 to 733 ft
	Maximum 746.5 ft
	Lake Length 39.3 mi
	Lake Water Surface Area at Elevation 738 8,900 ac
	Navigation Channel, Depth by Width 14 by 250 ft
	Length of Shoreline 91 mi

REPORT OF THE SECRETARY OF THE ARMY ON CIVIL WORKS ACTIVITIES FOR FY 01

**TABLE 30-J (Continued) PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project		
Lower Monumental Lock and Dam, WA (see Section 12 of text)	NAVIGATION LOCK	
	Clear Width	86 ft
	Clear Length	666 ft
	Lift:	
	Minimum	97 ft
	Average	98 ft
	Maximum	103 ft
	Minimum Water Depth Over Sills	15 ft
	Opened to Navigation	April 1969
	SPILLWAY DAM	
	Type of Construction	Concrete Gravity
	Completed	March 1969
	Maximum Capacity	850,000 cfs
	Crest Elevation	483 ft
	Control Gates:	
	Type	Tainter
	Size, Width by Height	50 by 60 ft
	Number	8
	POWERPLANT	
	Length	656 ft
	Width	243 ft
	Generating Units:	
	Number Installed	6
	Rating, Each	135,000 kW
	Total Capacity Installed	810,000 kW
	Maximum Structural Height	242 ft
	First Power-On-Line	May 1969
	IMPOUNDMENT	
	Elevations:	
	Normal Operating Range	540 to 537 ft
	Maximum	548 ft
	Lake Length	28.7 mi
	Lake Water Surface Area at Elevation 540	6,590 ac
	Navigation Channel, Depth by Width	14 by 250 ft
	Length of Shoreline	78 mi
McNary Lock and Dam, OR and WA (see Section 14 of text)	NAVIGATION LOCK	
	Clear Width	86 ft
	Clear Length	683 ft
	Lift:	
	Minimum	67 ft
	Average	75 ft
	Maximum	83 ft
	Minimum Water Depth Over Sills	15 ft
	Open to Navigation	November 1953

WALLA WALLA, WA, DISTRICT

**TABLE 30-J (Continued) PRINCIPLE DATA CONCERNING NAVIGATION LOCK,
SPILLWAY DAM, POWERPLANT, AND IMPOUNDMENT**

Project	
SPILLWAY DAM	
Type of Construction	Concrete Gravity
Completed	October 1953
Maximum Capacity	2,200,000 cfs
Crest Elevation	291 ft
Control Gates:	
Type	Vertical Lift
Size, Width by Height	50 by 51 ft
Number	22
POWERPLANT	
Length	1,348 ft
Generating Units:	
Number Installed	14
Rating, Each	70,000 kW
Total Capacity Installed	980,000 kW
Maximum Structural Height	220 ft
First Power-On-Line	November 1953
IMPOUNDMENT	
Elevations:	
Normal Operating Range	340 to 335 ft
Maximum	356.5 ft
Lake Length	64 mi
Lake Water Surface Area at Elevation 340	38,800 ac
Navigation Channel, Depth by Width	14 by 250 ft
Length of Shoreline	242 mi

¹ cubic feet per second

² feet

³ kilowatt

⁴ miles

⁵ acres

WALLA WALLA, WA, DISTRICT

**SNAKE RIVER DOWNSTREAM FROM
JOHNSON BAR LANDING, OR, WA, AND ID
(SEE SECTION 15 OF TEXT)**

TABLE 30-K

Project	Estimated Cost (Corps of Engineers Funds Only)	New Work to September 30, 2001 Cost	Approp.	Maintenance to September 30, 2001 Approp.	Cost	Percent Completed	Constr. Started
Ice Harbor Lock and Dam							
Initial Project	\$129,375,480	\$129,375,480	\$129,375,480	\$171,689,027	\$171,449,694	100	FY 56
Code 710 Rec Facilities	914,256	914,256	914,256	0	0	100	FY 57
Power Units 4-6	36,748,021	36,748,021	36,748,021	0	0	100	FY 71
Fish Bypass Program	<u>49,430,000</u>	<u>43,212,000</u>	<u>42,247,000</u>	<u>0</u>	<u>0</u>	<u>85</u>	FY 91
Totals	216,467,757	210,249,757	209,284,757	171,689,027	171,449,694	97	
Little Goose Lock and Dam							
Initial Project	160,043,215	160,043,215	160,043,215	118,361,838	118,296,607	100	FY 63
Power Units 4-6	60,941,807	60,941,807	60,941,807	0	0	100	FY 74
Fish Bypass Program	<u>60,810,000</u>	<u>41,647,000</u>	<u>41,572,000</u>	<u>0</u>	<u>0</u>	<u>68</u>	FY 89
Totals	281,795,022	262,632,022	262,557,022	118,361,838	118,296,607	93	
Lower Granite Lock and Dam							
Initial Project	319,875,981	319,875,981	319,875,981	166,707,403	166,551,030	100	FY 65
Code 710 Rec Facilities	63,800	63,800	63,800	0	0	100	FY 84
Power Units 4-6	46,212,534	46,212,534	46,212,534	0	0	100	FY 74
Fish Bypass Program	<u>59,183,000</u>	<u>33,928,000</u>	<u>33,915,000</u>	<u>0</u>	<u>0</u>	<u>57</u>	FY 88
Totals	425,335,315	400,080,315	400,067,315	166,707,403	166,551,030	94	
Lower Monumental Lock and Dam							
Initial Project	173,580,361	173,580,361	173,580,361	130,745,581	123,360,829	100	FY 61
Power Units 4-6	51,661,371	51,661,371	51,661,371	0	0	100	FY 75
Fish Bypass Program	<u>58,756,000</u>	<u>33,274,000</u>	<u>33,251,000</u>	<u>0</u>	<u>0</u>	<u>57</u>	FY 90
Totals	283,997,732	258,515,732	258,492,732	130,745,581	123,360,829	91	
Open River Lewiston to Johnson Bar Landing	34,613	34,613 ¹	34,613	401,583 ²	397,498		
Open River Pasco to Lewiston	<u>0</u>	<u>0</u>	<u>0</u>	<u>4,350</u>	<u>4,350</u>		
Totals Existing Project	1,207,630,439	1,131,512,439	1,130,436,439	587,909,782	580,060,008	94	
Previous Projects Pasco to Lewiston	400,150	400,150	400,150	186,570	186,570		
Totals Authorized Project	\$1,208,030,589	\$1,131,912,589	\$1,130,836,589	\$588,096,352	\$580,246,578		

¹ New work appropriations used for maintenance prior to 1953.

² Includes \$2,064 appropriated and \$3,180 expended in FY 96 for project condition survey cost.